

The Doe Run Resources Corporation (“Doe Run”)
Multi-Media Consent Decree (“Consent Decree”)
Paragraph 176 – Semi-Annual Compliance Report
October 31, 2014

Pursuant to Paragraph 176 of the Consent Decree between the United States and the State of Missouri and The Doe Run Resources Corporation d/b/a The Doe Run Company and the Buick Resource Recycling Facility (collectively “Doe Run”), Doe Run hereby submits this Semi-Annual Compliance Report.

This Semi-Annual Report provides the information required by Subsections a. through i. of Paragraph 176 of the Consent Decree, as well as specific reporting requirements of Paragraphs 43 and 47. For ease of reference, the paragraph requiring the specific information or implementation is included with each response.¹ Doe Run acknowledges that it is subject to and required to comply with all obligations within the Consent Decree, including those that do not have a specific implementation obligations. The certification provided applies to the information provided in this report and exhibits.

Pursuant to Paragraph 176, Doe Run has stated in the previous Semi-Annual Report that certain obligations have been completed. Doe Run has no additional information to report regarding those obligations beyond that reported in the previous Semi-Annual Report submissions. Please see the previous Semi-Annual Report submissions for details.

Paragraph 176a. – A progress report on the implementation of Sections V-X, XIV and XV.

V. COMPLIANCE REQUIREMENTS: CLEAN AIR ACT

14. Doe Run ceased the delivery to and processing of all lead sulfide ore concentrates at the Herculanum Smelter, ceased operation of all associated handling equipment, the Sintering Machine and ancillary equipment, and the Sulfuric Acid Plant on or before December 31, 2013. Doe Run ceased the operation of the Blast Furnaces on or before April 30, 2014. The obligations have been completed and will not be addressed in future status reports.

15. Doe Run notified EPA and MDNR that it was surrendering all portions of the air pollution permits related to the emissions units listed in Paragraph 14 via a written request on January 23, 2014. The obligations have been completed and will not be addressed in future status reports.

20. The limits and requirements of Paragraph 20 applied until cessation of operations occurred in accordance with Paragraph 14. As discussed above all applicable operations ceased and therefore Paragraph 20, including the requirement of Paragraph

¹ Those paragraphs that contain neither specific implementation requirements related to injunctive relief nor specific reporting requirements have not been listed in this Semi-Annual report.

20.d. regarding CERMS operation and maintenance no longer apply. The obligations have been completed and will not be addressed in future status reports.

VI. COMPLIANCE REQUIREMENTS: CLEAN WATER ACT

43. Reports describing implementation of the Site-Specific UWMP for the Sweetwater Mine, the Viburnum Mine #29, the Viburnum Mine #35(Casteel), the Buick Mine, the Brushy Creek Mine, and the Fletcher Mine/West Fork Mine are attached hereto as Exhibit A through Exhibit F.

47. Reports describing the implementation of the Site-Specific SWMP for the Viburnum Mine/Mill #35(Casteel), the Brushy Creek Mine/Mill, the Buick Mine/Mill, the Fletcher Mine/Mill, West Fork Mine/Mill, the Viburnum Mine/Mill, the Sweetwater Mine/Mill, the Herculaneum Lead Smelter Facility, the Glover Facility and the Buick Resource Recycling Facility are attached hereto as Exhibit G through Exhibit P.

48. Doe Run has modified the following Site-Specific SWMP based on new data gained through implementation of the SWMP and to update the status of the Site-Specific SWMP. The Site-Specific SWMP were submitted via letter dated May 26, 2014, to MDNR. MDNR provided comments via letter dated August 7, 2014. Doe Run is currently revising the Site-Specific SWMP based on the comments received. As a courtesy, the Viburnum Mine/Mill #35(Casteel), the Brushy Creek Mine/Mill, the Buick Mine/Mill, the Fletcher Mine/Mill, West Fork Mine/Mill, the Viburnum Mine/Mill, and the Sweetwater Mine/Mill as previously submitted are attached hereto as Exhibit Q through Exhibit W.

52. Doe Run submitted its Slag Storage Area Water Management Plan (“SSAWMP”) to EPA and MDNR via letter dated January 31, 2011. The SSAWMP was disapproved by EPA and MDNR on April 28, 2011. A revised SSAWMP was submitted to EPA and MDNR on June 30, 2011. The revised SSAWMP has not been approved by the EPA and MDNR during the relevant timeframe for this Semi-Annual Report.

53. Implementation of the SSAWMP will begin upon approval by the agencies.

VII. CLEAN WATER ACT PERMITS: RESOLUTION OF MISSOURI STATE OPERATING PERMIT APPEALS AND COMPLIANCE DEADLINES

Doe Run expressly reserves its rights to submit to EPA requests for site-specific permit limits and/or submit requests to the Special Master, pursuant to Paragraphs 73(c), 77, 78, 79(a)(ii), 80, 81(d) and (g), and 82(a), (b) and (d), and Tables 4 and 6 of Appendix D of the Consent Decree.

83-87. Doe Run has not submitted a request for site-specific or permit-specific Whole Effluent Toxicity (“WET”) limitations. Therefore, no response is required at this

time. Doe Run expressly reserves its right to submit a request for site-specific or permit-specific WET limitations.

102. Doe Run has submitted Discharge Monitoring Reports to MDNR documenting its compliance with interim, final and/or alternate effluent limitations.

103. Doe Run submitted to EPA and MDNR a request for an Alternative Limit for Cadmium at the Sweetwater Mine/Mill and the Viburnum Mine/Mill via a letter dated May 7, 2013. Doe Run has not yet received a response from EPA or MDNR regarding this request. Doe Run submitted to EPA and MDNR a request for an Alternative Limit for Cadmium at the West Fork Unit Facility, the Brushy Creek Mine/Mill and the Viburnum Mine #35 (Casteel) Facility via a letter dated July 19, 2013. Doe Run has not yet received a response from EPA or MDNR regarding this request.

104. Doe Run may request extensions of Alternate Limits as the time frames become applicable at other CWA Facilities.

112. Doe Run submitted the Buick Used Oil Storage Tank Work Plan and related plans to EPA and MDNR via letter dated January 20, 2012. On November 26, 2013, EPA returned the Buick Used Oil Storage Tank Work Plan for further action. Doe Run requested an extension of time to address the EPA's comments and was granted a 60 day extension which was confirmed via Doe Run letter on January 23, 2014. At the direction of Mr. Jim Aycock, of the EPA, Doe Run submitted a revised Buick Used Oil Storage Tank Work Plan on March 24, 2014. EPA and MDNR have not responded to the revised submittal during the relevant timeframe of this Semi-Annual Report.

113. In accordance with subpart (c), Doe Run will begin implementation on the Buick Used Oil Storage Tank Work Plan and related plans when Doe Run receives approval from EPA and MDNR.

IX. SITE REMEDIATION – HERCULANEUM

127. Doe Run has begun the site remediation process.

128. Doe Run submitted to EPA and MDNR a revised Site Investigation Work Plan for the Herculaneum Lead Smelter Facility via letter dated September 24, 2012. On February 6, 2013, EPA and MDNR approved the revised Site Investigation Work Plan. Doe Run completed implementing the approved plan in May 2013. A Site Investigation Report pertaining to the Port parcel was submitted to the EPA and MDNR via letter on September 4, 2013. A Site Investigation Report for the remainder of the smelter site was submitted to the EPA and MDNR via letter on December 4, 2013. Doe Run submitted the agreed upon RFI/CMS-type documents for the Port parcel to the EPA and MDNR via letter on October 4, 2013. Doe Run submitted the agreed upon RFI/CMS-type documents for the remainder of the Herculaneum Lead Smelter Facility to the EPA and MDNR via letter on December 30, 2013. Doe Run submitted to EPA and MDNR a revised Remedial Action Plan (RAP) for the Port Parcel via letter dated May 21, 2014.

129. Doe Run has not transported lead concentrate to the Herculaneum Lead Smelter Facility following the cessation of the operations required by Paragraph 14 of the Consent Decree. The obligations have been completed and will not be addressed in future status reports, except as described in the letter sent to the required agencies on June 11, 2014.

X. FINANCIAL ASSURANCES

130. Pursuant to Appendix E and Appendix F, Doe Run provided EPA and MDNR an Estimated Cost of Work via letter dated June 23, 2010. On March 1, 2012, EPA and MDNR approved the draft Trust Agreement. The Trust Agreement was executed by Doe Run on March 7, 2012. Doe Run submitted to EPA and MDNR an executed copy of the Trust Agreement, as well as Certification of Financial Assurance from Doe Run's Chief Financial Officer, indicating Doe Run had secured financial assurance for 25 percent of the Estimated Cost of Work, via letter dated March 12, 2012. Doe Run submitted to EPA and MDNR a Certification of Financial Assurance from Doe Run's Chief Financial Officer, indicating Doe Run had secured financial assurance for the second 25 percent (50% total) of the Estimated Cost of Work, via letter dated March 7, 2013. Pursuant to Appendix E, Section III, paragraph 8, Doe Run submitted to EPA and MDNR a revised written Estimated Cost of Work, via letter dated January 7, 2014. Doe Run submitted to EPA and MDNR a Certification of Financial Assurance from Doe Run's Chief Financial Officer, indicating Doe Run had secured financial assurance for the second 25 percent (75% total) of the Estimated Cost of Work, via letter dated March 12, 2014. No additional financial assurance was required to be made during this relevant reporting period.

133. Via letters dated January 31, 2011, Doe Run submitted to EPA and MDNR an Estimated Cost of Work for each Mine/Mill Facility, a document entitled "Operating Life of Doe Run's SEMO Mine/Mill Facilities" and draft Trust Agreements for each of the Mine/Mill Facilities. On April 16, 2013, EPA sent via letter returning the Estimated Cost of Work for each Mine/Mill Facility for further action. Doe Run has had discussions with EPA and MDNR regarding the Estimated Cost of Work for each Mine/Mill Facility. Therefore, EPA and MDNR have not yet approved the Estimated Cost of Work and/or draft Trust Agreements for the Mine/Mill Facilities during the current reporting period. Thus, the remainder of this paragraph is not yet applicable.

XIV. ADDITIONAL INJUNCTIVE RELIEF

154. In accordance with this Paragraph and Appendix H, the Brushy Creek Plant Enclosure was constructed and put into continuous operation as of September 1, 2012. The Buick Plant Enclosure was constructed and put into continuous operation as of September 1, 2013. The Sweetwater Plant Enclosure was constructed and put into continuous operation as of September 1, 2014. Doe Run submitted the "Enclosure of Lead Concentrate Storage and Handling for the Doe Run Fletcher Plant" to EPA and MDNR via a letter dated October 4, 2013. As Doe Run did not receive comments from

EPA and MDNR within 60 days, this Enclosure Plan was deemed approved on December 3, 2013. The Fletcher Plant Enclosure is currently under construction and is scheduled to be completed by September 1, 2015. For those facilities that have submitted Enclosure Plans, this obligation has been completed and will not be addressed in future status reports.

155. In accordance with this Paragraph and Appendix I, Doe Run submitted the “Sampling and Analysis Plan for Stream Assessment” (SAP) to EPA and MDNR via letter dated December 21, 2012. The SAP has not been approved by the EPA and MDNR during the relevant timeframe for this Semi-Annual Report.

159. The requirements under this Paragraph have not yet been triggered. Therefore, there is nothing to report at this time.

161. The requirements under this Paragraph have not yet been triggered. Therefore, there is nothing to report at this time.

165. No action has been taken by Doe Run that would trigger the obligations under this Paragraph. Therefore, there is nothing to report at this time.

XV. ENVIRONMENTAL MITIGATION PROJECTS

166. In accordance with this Paragraph and Appendix J, Doe Run submitted the “Environmental Mitigation Projects” to EPA and MDNR via letter dated October 22, 2012. The Environmental Mitigation Projects were approved by the EPA on January 16, 2013. The following subparagraphs provide an update on each project individually.

a. Clean Diesel Retrofit Project

A press release was sent out announcing the availability of the grant opportunity on February 12, 2013. The grant applications and announcements were sent to all Jefferson County school districts on February 21, 2013. As described in previous submittals, the total Project Dollars of \$300,000 were expended. All the buses originally planned to be retrofitted have been. A total of \$301,850 was distributed to seven school districts. There were insufficient funds available to fulfill the entire request from the Festus school district.

Doe Run requested combining the total Project Dollars between the Clean Diesel Retrofit project and the School Laboratory Clean-Out project. The combination of the total Project Dollars was approved by the EPA via letter dated September 19, 2014. Therefore, Doe Run has started the process of soliciting more districts to participate in the Clean Diesel Retrofit project. For additional information, please see the response to Paragraph 176c.

b. School Laboratory Clean Out

A press release was sent out announcing the availability of the grant opportunity on February 12, 2013. The grant applications and announcements were sent to all

Jefferson County school districts on February 21, 2013. The total Project Dollars for the School Laboratory Clean Out Project was set at a minimum of \$200,000. On August 21, 2013, grant applications and announcements were sent to school districts in Dent County, Iron County, Washington County, Scott County or Reynolds County.

At this time, a total of \$50,994.47 of the original \$200,000 minimum requirement has been distributed to three school districts. The Desoto school district was awarded funds on four separate occasions, for a total award of \$21,630. The first was for the assessment and training while the others for removal of chemicals no longer needed. Chemicals have also been removed from the Bunker School District High School, at a cost of \$15,250. Iron County C-4 School District received \$14,114.47 for the assessment and clean up phase of their School Laboratory Clean Out Project. Training of staff has not been completed yet at any of the schools.

Doe Run requested combining the total Project Dollars between the Clean Diesel Retrofit project and the School Laboratory Clean-Out project. The combination of the total Project Dollars was approved by the EPA via letter dated September 19, 2014. Therefore, Doe Run has continued the process of soliciting more districts to participate in the School Laboratory Clean Out project. For additional information, please see the response to Paragraph 176c.

c. Ground Source Heat Pump

Doe Run is currently in the process of identifying a suitable building to install ground source heat pumps to improve heating and cooling efficiency. The total Project Dollars for the Ground Source Heat Pump project is a minimum of \$300,000 and current amount budgeted to complete the project is \$697,700. Doe Run is currently contemplating requesting that some portion of the funds, approximately \$90,000, from the Environmental Management System for Doe Run Facilities project be transferred to this Ground Source Heat Pump project.

d. Environmental Management System for Doe Run Facilities

Doe Run selected to implement the Environmental Management System (EMS) at the Fletcher location and began ISO implementation in August 2013, culminating in recommendation for certification by Lloyds Register Quality Assurance on August 29, 2014. The total Project Dollars budgeted to complete the project is \$200,000. Doe Run has spent approximately \$50,000 of the total funds budgeted and completed the ISO project at the Fletcher Mine Mill as described in the Project Proposal. Doe Run plans to spend a subsequent \$60,000 next year to implement an EMS at Brushy Creek Mine and Mill. The Environmental Management System for Doe Run Facilities project does not have a required minimum spend amount. Doe Run is currently contemplating requesting that some portion of the funds, approximately \$90,000, from this Environmental Management System for Doe Run Facilities project be transferred to the Ground Source Heat Pump project.

Paragraph 176b. – The status of and likely target date for cessation of operation required by Section V.

The obligations have been completed and will not be addressed in future status reports.

Paragraph 176c. – A status report of any significant problems encountered in complying with Sections V-X, XIV and XV.

Given the overwhelming interest in the Clean Diesel Retrofit project and the relatively limited demand for the School Laboratory Clean-Out project, Doe Run has requested that (a) the requirement in Paragraph IV.A of Appendix J be eliminated or be revised to state: “Defendants shall spend no less than \$500,000 in Project Dollars combined on the School Laboratory Clean-Out project and the Clean Diesel Retrofit project described in Section II above;” and, (b) that this change be extended to amend the approved plans. The combination of the Clean Diesel Retrofit project and the School Laboratory Clean-Out project total dollar amount was approved by the EPA via letter dated September 19, 2014.

Due to problems encountered with the construction of multiple wastewater treatment plants, Doe Run has been involved in ongoing discussions with the Agencies to extend the deadlines established for compliance with final limits and adjust the alternate limits in Appendix B and Paragraph 102.

Doe Run has not encountered any other significant problems in complying with Sections V-X, XIV and XV during the relevant reporting period.

Paragraph 176d – A summary of the SO₂ emissions monitoring data collected pursuant to the Consent Decree, including the mass SO₂ emitted.

The obligations have been completed and will not be addressed in future status reports.

Paragraph 176e – A summary of the Sinter Production data collected pursuant to the Consent Decree.

The obligations have been completed and will not be addressed in future status reports.

Paragraph 176f – A summary of the Blast Furnace Sinter Consumption data collected pursuant to the Consent Decree.

The obligations have been completed and will not be addressed in future status reports.

Paragraph 176g – A summary of all the Refined Lead Metal Production data collected pursuant to the Consent Decree.

The obligations have been completed and will not be addressed in future status reports.

Paragraph 176h – The date and time identifying each period during which the CERMS was inoperative except for zero and span checks and the nature of any system repairs or adjustments.

The obligations have been completed and will not be addressed in future status reports.

Paragraph 176i – All substitute data used to determine compliance with the SO₂ emission limits established in Paragraph 20.c. of the Consent Decree along with supporting calculations.

The obligations have been completed and will not be addressed in future status reports.

Certification

I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that this document and its attachments were prepared either by me personally or under by direction or supervision in a manner designed to ensure that qualified and knowledgeable personnel properly gather, evaluate, and present the information therein. I further certify, based on my personal knowledge or on my inquiry of the persons who manage the system, or those persons directly responsible for gathering information, that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

THE DOE RUN RESOURCES CORPORATION


Signature


Print Name

Vice President –
Environmental, Health & Safety

Exhibit A

EXHIBIT A

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Underground Water Management Plan (“UWMP”) Implementation Status Report Sweetwater Mine/Mill (“Sweetwater”)

Paragraph 42 of the Consent Decree required Doe Run to develop a Site-Specific Underground Water Management Plan. Paragraph 43 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 44 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific UWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific UWMP for Sweetwater on November 7, 2011. This Status Report provides a summary of the actions conducted pursuant to the Sweetwater UWMP for the Semi-Annual Report period of April 2014 through September 2014 as well as any modifications made to the Sweetwater UWMP.

Training. The UWMP indicates that training will be conducted annually. Annual Refresher training for UWMP for key mine and environmental personnel was completed January 24, 2014 and February 26, 2014. The Environmental Technicians are available to conduct ongoing training for mine personnel to address issues or questions that arise.

Inspections. The UWMP indicates that general and sump inspections should occur quarterly by trained personnel. Doe Run conducted UWMP inspections, including the sumps, on May 29, 2014, and August 21, 2014. The Inspection Form, contained in Appendix D of the UWMP was utilized and will be kept in a file on-site. In addition to formal, quarterly inspections, Doe Run conducts periodic informal inspections as part of its operations.

Sampling. The UWMP indicates that sampling will continue at Sweetwater Mine/Mill to improve the understanding of mine water quality. Doe Run has conducted underground sampling at Casteel once monthly from April 2014 through September 2014. Monitoring frequency, locations, and parameters may be adjusted or discontinued, if deemed necessary by Doe Run.

CDH7 Flow Reduction Test.

The UWMP discusses alternatives for reducing flow from the CDH7 area. The previous Semi-Annual Implementation Status Report indicated that other potentially effective alternatives for eliminating flow from CDH7 are currently being explored. After exploring these alternatives, Doe Run determined that it is not economically feasible to eliminate the flow, and at this time, the water from CDH7 will continue to be pumped and treated. Further evaluation of the flow reduction may be evaluated at a later date if Doe Run deems necessary.

Piping. Underground at Sweetwater, water flows from CDH7 to #5 Sump to A-Area Sump. Piping from #5 Sump to A-Area Sump was scheduled to be completed by June 2012 and was completed ahead of schedule. The UWMP discusses installation of piping from vent shaft CDH7 to #5 Sump, and this project was contingent upon the completion of the CDH7 flow reduction project. Doe Run considered other potentially effective alternatives for eliminating flow from CDH7 and determined that it is not economically feasible to eliminate the flow. Therefore, pipe installation from CDH7 to #5 Sump was completed on April 18, 2014.

Corehole Sealing. The UWMP sets forth a process for corehole discovery and sealing, which formalized existing Doe Run procedures for corehole discovery, evaluation and sealing. No coreholes were identified since submission of the UWMP through the relevant timeframe of this Report. Doe Run will continue to follow the procedures outlined in the UWMP.

Ongoing Water Management Measure Evaluations. The UWMP indicates that Doe Run will continue to evaluate and implement water management measures at Sweetwater. Other than the site-specific projects discussed herein, Doe Run did not begin additional measures during the relevant timeframe.

Best Management Practices. Doe Run is implementing Best Management Practices ("BMPs"), where applicable, underground at Sweetwater as described in the UWMP.

Recordkeeping. Doe Run has incorporated tasks described in the Sweetwater UWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run has also hired additional personnel to assist with the environmental task management system and completion of environmental implementation schedule deadlines. Doe Run keeps records discussed in the UWMP on-site.

Plan Review and Update. No modifications to the UWMP have been made in the relevant timeframe of this Report. Review and update of this plan will be completed by December 31, 2014. Progress reports will be provided as required by Paragraph 43 of the Consent Decree.

Exhibit B

EXHIBIT B

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Underground Water Management Plan (“UWMP”) Implementation Status Report Viburnum #29 Mine (“Viburnum”)

Paragraph 42 of the Consent Decree required Doe Run to develop a Site-Specific Underground Water Management Plan. Paragraph 43 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 44 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific UWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific UWMP for Viburnum on December 2, 2011. This Status Report provides a summary of the actions conducted pursuant to the Viburnum UWMP for the Semi-Annual Report period of April 2014 through September 2014 as well as any modifications made to the Viburnum UWMP.

Training. The UWMP indicates that training will be conducted annually. Annual Refresher training for UWMP for key mine and environmental personnel was completed January 20, 2014 and January 24, 2014. The Environmental Technicians are available to conduct ongoing training for mine personnel to address issues or questions that arise.

Inspections. The UWMP indicates that general and sump inspections should occur quarterly by trained personnel. Doe Run conducted UWMP inspections on April 25, 2014, May 29, 2014, June 25, 2014, July 30, 2014, August 28, 2014, and September 30, 2014. The Inspection Form, contained in Appendix D of the UWMP was utilized and will be kept in a file on-site. In addition to formal, quarterly inspections, Doe Run conducts periodic informal inspections as part of its operations.

Sampling. The UWMP indicates that sampling will continue at Viburnum #29 Mine to improve the understanding of mine water quality. Doe Run has conducted underground sampling at Casteel once monthly from April 2014 through September 2014. Monitoring frequency, locations, and parameters may be adjusted or discontinued, if deemed necessary by Doe Run.

Piping. No piping projects were indicated in the UWMP for the Viburnum Mine. As such, no piping projects are currently scheduled at Viburnum. Doe Run will evaluate whether piping should be installed on an as-needed basis.

Corehole Sealing. The UWMP sets forth a process for corehole discovery and sealing, which formalized existing Doe Run procedures for corehole discovery, evaluation and sealing. No coreholes were identified since submission of the UWMP through the relevant timeframe of this Report.

Ongoing Water Management Measure Evaluations. The UWMP indicates that Doe Run will continue to evaluate and implement water management measures at Viburnum. Other than site-specific projects discussed herein, Doe Run did not begin additional measures during the relevant timeframe.

Best Management Practices. Doe Run is implementing Best Management Practices (“BMPs”), where applicable, underground at Viburnum as described in the UWMP. In addition to the BMPs described in the UWMP, routine maintenance was performed on roadways.

Recordkeeping. Doe Run has incorporated tasks described in the Viburnum UWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run has also hired additional personnel to assist with the environmental task management system and completion of environmental implementation schedule deadlines. Doe Run keeps records discussed in the UWMP on-site.

Plan Review and Update. No modifications to the UWMP have been made in the relevant timeframe of this Report. Review and update of this plan will be completed by December 31, 2014. Progress reports will be provided as required by Paragraph 43 of the Consent Decree.

Exhibit C

EXHIBIT C

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Underground Water Management Plan (“UWMP”) Implementation Status Report Casteel Mine (“Casteel”)

Paragraph 42 of the Consent Decree required Doe Run to develop a Site-Specific Underground Water Management Plan. Paragraph 43 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 44 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific UWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific UWMP for Casteel on January 10, 2012. This Status Report provides a summary of the actions conducted pursuant to the Casteel UWMP for the Semi-Annual Report period of April 2014 through September 2014 as well as any modifications made to the Casteel UWMP.

Training. The UWMP indicates that training will be conducted annually. Annual Refresher training for UWMP for some key mine and environmental personnel was completed during the annual review on November 5, 2013. The Environmental Technicians are available to conduct ongoing training for mine personnel to address issues or questions that arise.

Inspections. The UWMP indicates that general and sump inspections should occur quarterly by trained personnel. Inspections were conducted April 28, 2014, May 13, 2014, June 12, 2014, July 14, 2014, August 19, 2014, and September 2, 2014. The Inspection Form, contained in Appendix D of the UWMP was utilized and will be kept in a file on-site. In addition to formal, quarterly inspections, Doe Run conducts periodic informal inspections as part of its operations.

Sampling. The UWMP indicates that sampling will continue at Casteel Mine to improve the understanding of mine water quality. Doe Run has conducted underground sampling at Casteel once monthly from April 2014 through September 2014. Monitoring frequency, locations, and parameters may be adjusted or discontinued, if deemed necessary by Doe Run.

Piping. The UWMP discusses installation of piping in 30BJC and 86 Sump. These piping projects were completed by June 2012. The UWMP also discusses ongoing piping evaluations. On an as-needed basis, Doe Run will continue to evaluate whether piping can be installed in a cost-effective manner and in such a way as to capture the incoming water with a minimum of water quality degradation.

Corehole Sealing. The UWMP sets forth a process for corehole discovery and sealing, which formalized existing Doe Run procedures for corehole discovery, evaluation and sealing. No coreholes were identified since submission of the UWMP through the relevant timeframe of this Report.

Ongoing Water Management Measure Evaluations. The UWMP indicates that Doe Run will continue to evaluate and implement water management measures at Casteel. Other than site-specific projects discussed herein, Doe Run did not begin additional measures during the relevant timeframe.

Best Management Practices. Doe Run is implementing Best Management Practices (“BMPs”), where applicable, underground at Casteel as described in the UWMP. In addition to the BMPs described in the UWMP, Doe Run conducted routine maintenance to ditches, including sediment removal, from April 2014 through September 2014 throughout the mine to reduce metal loading to water before it enters the sumps.

Recordkeeping. Doe Run has incorporated tasks described in the Casteel UWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run has also hired additional personnel to assist with the environmental task management system and completion of environmental implementation schedule deadlines. Doe Run keeps records discussed in the UWMP on-site.

Plan Review and Update. No modifications to the UWMP have been made in the relevant timeframe of this Report. Review and update of this plan will be completed by December 31, 2014. Progress reports will be provided as required by Paragraph 43 of the Consent Decree.

Exhibit D

EXHIBIT D

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Underground Water Management Plan (“UWMP”) Implementation Status Report Buick Mine/Mill (“Buick”)

Paragraph 42 of the Consent Decree required Doe Run to develop a Site-Specific Underground Water Management Plan. Paragraph 43 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 44 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific UWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific UWMP for Buick on January 30, 2012. This Status Report provides a summary of the actions conducted pursuant to the Buick UWMP for the Semi-Annual Report period of April 2014 through September 2014 as well as any modifications made to the Buick UWMP.

Training. The UWMP indicates that training will be conducted annually. Annual Refresher training for UWMP for key mine and environmental personnel for the relevant reporting period was completed on January 22, 2014 and January 24, 2014. The Environmental Technicians are available to conduct ongoing training for mine personnel to address issues or questions that arise.

Inspections. The UWMP indicates that general and sump inspections should occur quarterly by trained personnel. Doe Run conducted UWMP inspections in April, May, June, July, August, and September 2014. The Inspection Form, contained in Appendix D of the UWMP was utilized and will be kept in a file on-site. In addition to formal, quarterly inspections, Doe Run conducts periodic informal inspections as part of its operations.

Sampling. The UWMP indicates that sampling will continue at Buick Mine/Mill to improve the understanding of mine water quality. Doe Run has conducted underground sampling at Casteel once monthly from April 2014 through September 2014. Monitoring frequency, locations, and parameters may be adjusted or discontinued, if deemed necessary by Doe Run.

Piping. No piping projects were indicated in the UWMP for the Buick Mine. As such, no piping projects are currently scheduled at Buick. Doe Run will evaluate whether piping should be installed on an as-needed basis.

Corehole Sealing. The UWMP sets forth a process for corehole discovery and sealing, which formalized existing Doe Run procedures for corehole discovery, evaluation and sealing. No coreholes were identified since submission of the UWMP through the relevant timeframe of this Report. Doe Run will continue to follow the procedures outlined in the UWMP.

Ongoing Water Management Measure Evaluations. The UWMP indicates that Doe Run will continue to evaluate and implement water management measures at Buick. Other than site-specific projects discussed herein, Doe Run did not begin additional measures during the relevant timeframe.

Best Management Practices. Doe Run is implementing Best Management Practices (“BMPs”), where applicable, underground at Buick as described in the UWMP. In addition to the BMPs described in the UWMP, Doe Run conducted routine maintenance to ditches, including sediment removal, April 2014 to September 2014 throughout the mine to reduce metal loading to water before it enters the sumps.

Recordkeeping. Doe Run has incorporated tasks described in the Buick UWMP implementation schedule into its Enterprise Task Management System (“ETMS”). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run has also hired additional personnel to assist with the environmental task management system and completion of environmental implementation schedule deadlines. Doe Run keeps records discussed in the UWMP on-site.

Plan Review and Update. No modifications to the UWMP have been made in the relevant timeframe of this Report. Review and update of this plan will be completed by December 31, 2014. Progress reports will be provided as required by Paragraph 43 of the Consent Decree.

Exhibit E

EXHIBIT E

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Underground Water Management Plan (“UWMP”) Implementation Status Report Brushy Creek Mine/Mill (“Brushy Creek”)

Paragraph 42 of the Consent Decree required Doe Run to develop a Site-Specific Underground Water Management Plan. Paragraph 43 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 44 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific UWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific UWMP for Brushy Creek on March 1, 2012. This Status Report provides a summary of the actions conducted pursuant to the Brushy Creek UWMP for the Semi-Annual Report period of April 2014 through September 2014 as well as any modifications made to the Brushy Creek UWMP.

Training. The UWMP indicates that training will be conducted annually. Annual Refresher training for UWMP for some key mine and environmental personnel training is scheduled to occur following the review and update of the plan which will be completed in October 2014. The Environmental Technicians are available to conduct ongoing training for mine personnel to address issues or questions that arise.

Inspections. The UWMP indicates that general and sump inspections should occur quarterly by trained personnel. Doe Run conducted UWMP inspections on April 28, 2014, May 25, 2014, June 26, 2014, July 30, 2014, August 27, 2014, and September 24, 2014. The Inspection Form, contained in Appendix D of the UWMP was utilized and will be kept in a file on-site. In addition to formal, quarterly inspections, Doe Run conducts periodic informal inspections as part of its operations.

Sampling. The UWMP indicates that sampling will continue at Brushy Creek Mine/Mill to improve the understanding of mine water quality. Doe Run has conducted underground sampling at Casteel once monthly from April 2014 through September 2014. Monitoring frequency, locations, and parameters may be adjusted or discontinued, if deemed necessary by Doe Run.

Piping. The UWMP discusses installation of piping from the 9UC discharge location to the south mine sump. Doe Run completed this piping project on December 4, 2012. Evaluation of the data indicated a significant reduction in total lead and total suspended solids. The UWMP also discusses ongoing piping evaluations. On an as-needed basis, Doe Run will continue to evaluate whether piping can be installed in a cost-effective manner and in such a way as to capture the incoming water with a minimum of water quality degradation.

Corehole Sealing. The UWMP sets forth a process for corehole discovery and sealing, which formalized existing Doe Run procedures for corehole discovery, evaluation and sealing. No coreholes identified

through the relevant timeframe of this Report. Doe Run will continue to follow the procedures outline in the UWMP.

Best Management Practices. Doe Run is implementing Best Management Practices (“BMPs”), where applicable, underground at Brushy Creek as described in the UWMP. In addition to the BMPs described in the UWMP, Doe Run conducted routine maintenance to ditches, including sediment removal from various sumps throughout the mine from June 2014 through September 2014.

Recordkeeping. Doe Run has incorporated tasks described in the Brushy Creek UWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run has also hired additional personnel to assist with the environmental task management system and completion of environmental implementation schedule deadlines. Doe Run keeps records discussed in the UWMP on-site.

Plan Review and Update. No modifications to the UWMP have been made in the relevant timeframe of this Report. Review and update of this plan will be completed by December 31, 2014. Progress reports will be provided as required by Paragraph 43 of the Consent Decree.

Exhibit F

EXHIBIT F

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Underground Water Management Plan (“UWMP”) Implementation Status Report Fletcher/West Fork Mine (“Fletcher”)

Paragraph 42 of the Consent Decree required Doe Run to develop a Site-Specific Underground Water Management Plan. Paragraph 43 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 44 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific UWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific UWMP for Fletcher on April 2, 2012. This Status Report provides a summary of the actions conducted pursuant to the Fletcher UWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The UWMP indicates that training will be conducted annually. Annual Refresher training for UWMP for key mine and environmental personnel for the relevant reporting period was completed on January 24, 2014 and February 4, 2014. The Environmental Technicians are available to conduct ongoing training for mine personnel to address issues or questions that arise.

Inspections. The UWMP indicates that general and sump inspections should occur quarterly by trained personnel. Doe Run conducted UWMP inspections including the sumps on April 17, 2014, May 29, 2014, July 25, 2014, August 7, 2014, and September 4, 2014. The Inspection Form, contained in Appendix D of the UWMP was utilized and will be kept in a file on-site. In addition to formal, quarterly inspections, Doe Run conducts periodic informal inspections as part of its operations.

Sampling. The UWMP indicates that sampling will continue at Fletcher/West Fork Mine/Mill to improve the understanding of mine water quality. Doe Run has conducted underground sampling at Casteel once monthly from April 2014 through September 2014. Monitoring frequency, locations, and parameters may be adjusted or discontinued, if deemed necessary by Doe Run.

Piping. No piping projects were indicated in the UWMP for the Fletcher Mine. As such, no piping projects are currently scheduled at Fletcher. Doe Run will also continue to evaluate whether piping should be installed on an as-needed basis.

Corehole Sealing. The UWMP sets forth a process for corehole discovery and sealing, which formalized existing Doe Run procedures for corehole discovery, evaluation and sealing.

Ongoing Water Management Measure Evaluations. The UWMP indicates that Doe Run will continue to evaluate and implement water management measures at Fletcher. Other than site-specific projects discussed herein, Doe Run did not begin additional measures during the relevant timeframe.

Best Management Practices. Doe Run is implementing Best Management Practices (“BMPs”), where applicable, underground at Fletcher as described in the UWMP. In addition to the BMPs described in the UWMP, Doe Run removed excess sediment from ditches during June, July, and August 2014.

Recordkeeping. Doe Run has incorporated tasks described in the Fletcher UWMP implementation schedule into its Enterprise Task Management System (“ETMS”). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run has also hired additional personnel to assist with the environmental task management system and completion of environmental implementation schedule deadlines. Doe Run keeps records discussed in the UWMP on-site.

Plan Review and Update. No modifications to the UWMP have been made in the relevant timeframe of this Report. Review and update of this plan will be completed by December 31, 2014. Progress reports will be provided as required by Paragraph 43 of the Consent Decree.

Exhibit G

EXHIBIT G

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Casteel Mine (“Casteel”)

Paragraph 46 of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for Casteel on April 30, 2012. Doe Run received approval notification from EPA on June 14, 2012. This Status Report provides a summary of the actions conducted pursuant to the Casteel SWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The SWMP states that annual refresher training for appropriate personnel will be conducted in conjunction with SWPPP Training. Annual refresher training is scheduled to occur following the review and update of the plan which will be completed in October 2014.

Sampling. The SWMP indicates that water quality monitoring will continue at Sweetwater facility as required by the Missouri State Operating Permit (“MSOP”) and sampling at other locations will be assessed and implemented on an as-needed basis. Sampling according to the MSOP and monitoring at other locations was completed monthly from April 2014 to September 2014.

Pilot Studies. The SWMP discusses the completion of two pilot studies to support determination of the most effective and economical way to meet future final Missouri State Operating Permit limits. Two pilot projects were conducted at Doe Run’s Buick Mine/Mill facility and Brushy Creek Mine/Mill facility. One project included metals precipitation through the addition of chemicals and the other included metals precipitation through the addition of chemicals as well as ion exchange. These two pilot projects were complete in July 2012. The SWMP indicates that upon completion of the mine water treatment pilot studies, Doe Run will evaluate the cost-effectiveness of a mine water treatment for Casteel. This is currently underway.

Mine Water Transfer. The SWMP indicates that Doe Run will submit a request for MDNR to provide feedback on the concept of transferring mine water from Casteel Mine to the new Viburnum tailings basin by June 30, 2012. Doe Run sent the request to MDNR on May 7, 2012. The SWMP indicates that the regulatory review will be completed by August 31, 2012. Doe Run received approval to pilot test the pumping of mine water from Casteel to Viburnum on July 12, 2012. The SWMP indicates that the evaluation of technical feasibility of the mine water transfer would be complete by September 1, 2012. This evaluation was completed on August 17, 2012. The SWMP indicates that the technical feasibility and cost of water transfer will be complete by October 31, 2012. The technical feasibility and the cost of

water transfer, as previously stated, was completed by October 31, 2012. The SWMP indicates that Doe Run will evaluate the feasibility and cost-effectiveness of Casteel mine water treatment versus transferring the mine water to Viburnum by December 31, 2012. The evaluation of cost-effectiveness was complete by December 31, 2012. Doe Run has determined that is cost-effective to transfer the mine water to Viburnum. MDNR determined that the Antidegradation Review documentation supplied by Doe Run satisfied the requirements of the Missouri Antidegradation Rule and Implementation Procedure. On August 22, 2013, Doe Run submitted a request for a pilot project at Viburnum Operations. This project is to determine the effects of Casteel mine water on the Old Viburnum tailings impoundment water after it has undergone treatment by settling at the New Viburnum tailings impoundment and then additional settling at the Old Viburnum tailings pond. MDNR granted approval of this pilot project through September 30, 2014.

Inspections. Best management practices are inspected at Casteel every month pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). SWPPP Inspections were conducted on April 10, 2014, May 13, 2014, June 17, 2014, July 21, 2014, August 19, 2014, and September 25, 2014.

Recordkeeping. Doe Run has incorporated tasks described in the Casteel SWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site.

Plan Review and Update. The SWMP was scheduled to be reviewed and revised between March 1, 2014 and April 30, 2014. Doe Run reviewed the SWMP in April 2014, revised the SWMP in May 2014, and submitted the SWMP to EPA. The SWMP is currently being reviewed and revised again based on comments received from EPA. Progress reports are provided in this Implementation Status Report as required by Paragraph 47 of the Consent Decree.

Exhibit H

EXHIBIT H

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Brushy Creek Mine/Mill (“Brushy Creek”)

Paragraph 46 of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for Brushy Creek on May 30, 2012. Doe Run received approval notification from EPA on July 15, 2012. This Status Report provides a summary of the actions conducted pursuant to the Brushy Creek SWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The SWMP states that annual refresher training for appropriate personnel will be conducted in conjunction with SWPPP Training. Annual refresher training is scheduled to occur following the review and update of the plan which will be completed in October 2014.

Sampling. The SWMP indicates that water quality monitoring will continue at Brushy Creek facility as required by the Missouri State Operating Permit (“MSOP”) and sampling at other locations will be assessed and implemented on an as-needed basis. Sampling according to the MSOP and monitoring at other locations was completed monthly from April 2014 to September 2014.

Wastewater Treatment Plant. The SWMP discusses the completion of two pilot studies to support determination of the most effective and economical way to meet future final Missouri State Operating Permit limits. These two pilot projects were complete in July 2012. The SWMP indicates that upon completion of the mine water treatment pilot studies, Doe Run will evaluate the cost-effectiveness of a mine water treatment for Brushy Creek. Doe Run completed the cost evaluation for these two pilot studies and determined that the pilot study including metals precipitation through the addition of chemicals is economically feasible for the Brushy Creek facility. Construction began on the wastewater treatment plant in early 2013 and was completed in December 2013.

Inspections. Best management practices are inspected at Brushy Creek every month pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). SWPPP Inspections were conducted on April 28, 2014, May 21, 2014, June 12, 2014, July 9, 2014, August 13, 2014, and September 15, 2014. These inspection records are kept on-site at Brushy Creek.

Recordkeeping. Doe Run has incorporated tasks described in the Brushy Creek SWMP implementation schedule into its Enterprise Task Management System (“ETMS”). The ETMS provides notification to

assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site.

Plan Review and Update. The SWMP was scheduled to be reviewed and revised between April and May 2014. Doe Run reviewed and revised the SWMP in May 2014 and submitted the SWMP to EPA. The SWMP is currently being reviewed and revised again based on comments received from EPA. Progress reports are provided in this Implementation Status Report as required by Paragraph 47 of the Consent Decree.

Exhibit I

EXHIBIT I

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Buick Mine/Mill (“Buick”)

Paragraph 46 of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for Buick on June 29, 2012. Doe Run received approval notification from EPA on August 9, 2012. This Status Report provides a summary of the actions conducted pursuant to the Buick SWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The SWMP states that annual refresher training for appropriate personnel will be conducted in conjunction with SWPPP Training. Annual refresher training is scheduled to occur following the review and update of the plan which will be completed in October 2014.

Sampling. The SWMP indicates that water quality monitoring will continue at Buick facility as required by the Missouri State Operating Permit (“MSOP”) and sampling at other locations will be assessed and implemented on an as-needed basis. Sampling according to the MSOP and monitoring at other locations was completed monthly from April 2014 to September 2014.

Water Treatment Plant. The SWMP discusses the completion of two pilot studies to support determination of the most effective and economical way to meet future final Missouri State Operating Permit limits. These two pilot projects were complete in July 2012. The SWMP indicates that upon completion of the mine water treatment pilot studies, Doe Run will evaluate the cost-effectiveness of a mine water treatment for Buick. Doe Run completed the cost evaluation for these two pilot studies and determined that the pilot study including metals precipitation through the addition of chemicals is economically feasible for the Buick facility. Construction began on the water treatment plant in August 2014.

Inspections. Best management practices are inspected at Buick every month pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). SWPPP Inspections were conducted on April 24, 2014, May 20, 2014, June 27, 2014, July 29, 2014, August 14, 2014, and September 17, 2014. These inspection records are kept on-site at Buick.

Recordkeeping. Doe Run has incorporated tasks described in the Buick SWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site.

Plan Review and Update. The SWMP was scheduled to be reviewed and revised between April 1, 2014 and May 31, 2014. Doe Run reviewed and revised the SWMP in May 2014 and submitted the SWMP to EPA. The SWMP is currently being reviewed and revised again based on comments received from EPA. Progress reports are provided in this Implementation Status Report as required by Paragraph 47 of the Consent Decree.

Exhibit J

EXHIBIT J

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Fletcher Mine/Mill (“Fletcher”)

Paragraph 46.b of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for Fletcher on July 30, 2012. Doe Run did not receive a response from MDNR or EPA within 45 days of submittal. Pursuant to Paragraph 46.a of the Consent Decree, the SWMP was deemed approved on September 13, 2012. This Status Report provides a summary of the actions conducted pursuant to the Fletcher SWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The SWMP states that annual refresher training for appropriate personnel will be conducted in conjunction with SWPPP Training. Annual refresher training is scheduled to occur following the review and update of the plan which will be completed in October 2014.

Sampling. The SWMP indicates that water quality monitoring will continue at Fletcher facility as required by the Missouri State Operating Permit (“MSOP”) and sampling at other locations will be assessed and implemented on an as-needed basis. Sampling according to the MSOP and monitoring at other locations was completed monthly from April 2014 to September 2014.

Pilot Studies. The SWMP discusses the completion of two pilot studies to support determination of the most effective and economical way to meet future final Missouri State Operating Permit limits. Two pilot projects were conducted at Doe Run’s Buick Mine/Mill facility and Brushy Creek Mine/Mill facility. One project included metals precipitation through the addition of chemicals and the other included metals precipitation through the addition of chemicals as well as ion exchange. These two pilot projects were complete in July 2012. The SWMP indicates that upon completion of the mine water treatment pilot studies, Doe Run will evaluate the cost-effectiveness of a mine water treatment for Fletcher. This is currently underway.

Inspections. Best management practices are inspected at Fletcher every month pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). SWPPP Inspections were conducted on April 11, 2014, May 6, 2014, June 13, 2014, July 10, 2014, August 15, 2014, and September 11, 2014. These inspection records are kept on-site at Fletcher.

Recordkeeping. Doe Run has incorporated tasks described in the Fletcher SWMP implementation schedule into its Enterprise Task Management System (“ETMS”). The ETMS provides notification to

assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site.

Plan Review and Update. The SWMP was scheduled to be reviewed and revised between June and July 2014. Doe Run reviewed and revised the SWMP in May 2014 and submitted the SWMP to EPA. The SWMP is currently being reviewed and revised again based on comments received from EPA. Progress reports are provided in this Implementation Status Report as required by Paragraph 47 of the Consent Decree.

Exhibit K

EXHIBIT K

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report West Fork Mine/Mill (“West Fork”)

Paragraph 46 of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for West Fork on August 27, 2012. Doe Run received approval notification from EPA on September 27, 2012. This Status Report provides a summary of the actions conducted pursuant to the West Fork SWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The SWMP states that annual refresher training for appropriate personnel will be conducted in conjunction with SWPPP Training. Annual refresher training is scheduled to occur following the review and update of the plan which will be completed in October 2014.

Sampling. The SWMP indicates that water quality monitoring will continue at West Fork facility as required by the Missouri State Operating Permit (“MSOP”) and sampling at other locations will be assessed and implemented on an as-needed basis. Sampling according to the MSOP and monitoring at other locations was completed monthly from April 2014 to September 2014.

Pilot Studies. The SWMP discusses the completion of two pilot studies to support determination of the most effective and economical way to meet future final Missouri State Operating Permit limits. Two pilot projects were conducted at Doe Run’s Buick Mine/Mill facility and Brushy Creek Mine/Mill facility. One project included metals precipitation through the addition of chemicals and the other included metals precipitation through the addition of chemicals as well as ion exchange. These two pilot projects were complete in July 2012. The SWMP discusses the pilot test involving discharge of mine water directly to the tailings impoundment at West Fork. This pilot study is currently underway. The SWMP also indicates that upon completion of the mine water treatment pilot studies, Doe Run will evaluate the cost-effectiveness of a mine water treatment for West Fork. This is currently underway.

Inspections. Best management practices are inspected at West Fork every month pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). SWPPP inspections were conducted on April 21, 2014, May 6, 2014, June 13, 2014, July 10, 2014, August 15, 2014, and September 11, 2014. These inspection records are kept on-site at West Fork.

Recordkeeping. Doe Run has incorporated tasks described in the West Fork SWMP implementation schedule into its Enterprise Task Management System (“ETMS”). The ETMS provides notification to

assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site.

Plan Review and Update. The SWMP was scheduled to be reviewed and revised between June and July 2014. Doe Run reviewed and revised the SWMP in May 2014 and submitted the SWMP to EPA. The SWMP is currently being reviewed and revised again based on comments received from EPA. Progress reports are provided in this Implementation Status Report as required by Paragraph 47 of the Consent Decree.

Exhibit L

EXHIBIT L

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Viburnum Operations (“Viburnum”)

Paragraph 46.b of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for Viburnum on September 25, 2012. Doe Run received approval notification from EPA on November 26, 2012. This Status Report provides a summary of the actions conducted pursuant to the Viburnum SWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The SWMP states that annual refresher training for appropriate personnel will be conducted in conjunction with SWPPP Training. Annual refresher training is scheduled to occur following the review and update of the plan which will be completed in October 2014.

Sampling. The SWMP indicates that water quality monitoring will continue at Viburnum facility as required by the Missouri State Operating Permit (“MSOP”) and sampling at other locations will be assessed and implemented on an as-needed basis. Sampling according to the MSOP and monitoring at other locations was completed monthly from April 2014 to September 2014.

Water Management Evaluations The SWMP indicates that there are two water management evaluations planned to support determination of the most effective and economical way to meet future final MSOP limits at Viburnum. The first water management evaluation indicated is the construction phase for a full-scale treatment system at Brushy Creek. Construction of this treatment plant was complete in December 2013. A similar treatment system may be contemplated at Viburnum. The second water management evaluation indicated is the evaluation of the feasibility of transferring mine water from Casteel to the new Viburnum tailings basin, which would affect water management planning at Viburnum. In 2012, the first phase of the feasibility study and pilot test was complete. Doe Run determined that it was feasible to pump Casteel mine water to Viburnum. On August 30, 2013, Doe Run requested approval for another pilot study to evaluate the effects of Casteel mine water on the Old Viburnum tailings impoundment water after it has undergone treatment by settling at the New Viburnum tailings impoundment and then additional settling at the Old Viburnum tailings pond. MDNR granted approval of this pilot project through September 30, 2014.

Inspections. Best management practices are inspected at Viburnum every month pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). SWPPP inspections were conducted at Viburnum #29 Mine on April 25, 2014, May 29, 2014, June 25, 2014, July 30, 2014, August 28, 2014,

and September 30, 2014. SWPPP inspections were conducted at Viburnum #28 Mine/Mill on April 14, 2014, May 13, 2014, June 27, 2014, July 31, 2014, August 5, 2014, and September 30, 2014. These inspection records are kept on-site at Viburnum.

Recordkeeping. Doe Run has incorporated tasks described in the Viburnum SWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site.

Plan Review and Update. The SWMP was scheduled to be reviewed and revised between August and September, 2014. Doe Run reviewed and revised the SWMP in May 2014 and submitted the SWMP to EPA. The SWMP is currently being reviewed and revised again based on comments received from EPA. Progress reports are provided in this Implementation Status Report as required by Paragraph 47 of the Consent Decree.

Exhibit M

EXHIBIT M

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 43

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Sweetwater Mine/Mill (“Sweetwater”)

Paragraph 46.b of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for Sweetwater on October 29, 2012. Doe Run received approval notification from EPA on December 12, 2012. This Status Report provides a summary of the actions conducted pursuant to the Sweetwater SWMP for the Semi-Annual Report period of April 2014 through September 2014.

Training. The SWMP states that annual refresher training for appropriate personnel will be conducted in conjunction with SWPPP Training. Annual refresher training is scheduled to occur following the review and update of the plan which will be completed in October 2014.

Sampling. The SWMP indicates that water quality monitoring will continue at Sweetwater facility as required by the Missouri State Operating Permit (“MSOP”) and sampling at other locations will be assessed and implemented on an as-needed basis. Sampling according to the MSOP and monitoring at other locations was completed monthly from April 2014 to September 2014.

Pilot Studies. The SWMP discusses the completion of two pilot studies to support determination of the most effective and economical way to meet future final Missouri State Operating Permit limits. Two pilot projects were conducted at Doe Run’s Buick Mine/Mill facility and Brushy Creek Mine/Mill facility. One project included metals precipitation through the addition of chemicals and the other included metals precipitation through the addition of chemicals as well as ion exchange. These two pilot projects were complete in July 2012. The SWMP indicates that upon completion of the mine water treatment pilot studies, Doe Run will evaluate the cost-effectiveness of a mine water treatment for Sweetwater. This is currently underway.

Inspections. Best management practices are inspected at Sweetwater every month pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). SWPPP inspections were conducted on April 4, 2014, May 8, 2014, June 17, 2014, July 8, 2014, August 15, 2014, and September 11, 2014. These inspection records are kept on-site at Sweetwater.

Recordkeeping. Doe Run has incorporated tasks described in the Sweetwater SWMP implementation schedule into its Enterprise Task Management System (“ETMS”). The ETMS provides notification to

assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site.

Plan Review and Update. The SWMP was scheduled to be reviewed and revised between September and October, 2014. Doe Run reviewed and revised the SWMP in May 2014 and submitted the SWMP to EPA. The SWMP is currently being reviewed and revised again based on comments received from EPA. Progress reports are provided in this Implementation Status Report as required by Paragraph 47 of the Consent Decree.

Exhibit N

EXHIBIT N

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 47

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Herculaneum Lead Smelter Facility (“Herky”)

Paragraph 46 of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted the Site-Specific SWMP for Herky on January 10, 2012. On February 24, 2012, Doe Run received a partial disapproval part notification from the EPA. Doe Run on February 24, 2012, Doe Run submitted a revised Site-Specific SWMP for the Herculaneum Lead Smelter Facility on March 26, 2012. Doe Run resubmitted the SSSWMP on March 30, 2012. This Status Report provides a summary of the actions conducted pursuant to the Herky SWMP.

Training. Initial training, including education of key smelter personnel, as to the various elements of the SWMP, was initiated during the development of the SWMP. Further detailed training for key smelter and environmental personnel was completed during the Environmental Annual Refresher Trainings. The environmental department facilitators are available to conduct ongoing training for smelter personnel as needed.

Sampling. The SWMP states that Doe Run will take weekly WWTP influent monitoring (Forebay) samples, weekly monitoring samples at NPDES locations, quarterly groundwater monitoring samples at the SSA, and special project monitoring for source reduction efforts. Doe Run has completed all required sampling except for the special project monitoring as we are meeting final limits and no special projects were needed.

Cadmium Reduction Project. The cadmium project consists of packaging and selling of cadmium products located primarily in the dust from the ESP and baghouse. Doe Run has seen a decrease in Cadmium loading to the WWTP due to this project. Forebay influent samples that were collected weekly for operational purposes were used to track this long term trend. Since the project was initiated in December of 2010, only one month (November 2011) was above final limits.

Water Characterization Study/Process Determination: Doe Run is meeting final limits with the current design; therefore, no process changes will be implemented.

Stormwater Capture. The SWMP predicted that Herky has sufficient capacity to store, contain and treat a 2.8-inch storm event. Herky has not had any storage, containment, or treatment issues during this reporting period.

Inspections. Inspections were conducted pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). These inspection records are kept on-site at Herky.

Recordkeeping. Doe Run has incorporated tasks described in the Herky SWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site and in the Doe Run LMS system.

Plan Review and Update. The SWMP is scheduled to be reviewed and revised between October 2014 and April 2015. Doe Run will review and revise the SWMP as needed. Progress reports will be provided as required by Paragraph 47 of the Consent Decree.

Exhibit O

EXHIBIT O

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 47

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Glover Facility (“Glover”)

Paragraph 46 of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted the Site-Specific SWMP for Glover March 1, 2012. Doe Run received approval from the EPA on April 16, 2012. This Status Report provides a summary of the actions conducted pursuant to the Glover SWMP.

Training. Initial training, including education of key personnel, as to the various elements of the SWMP, was initiated during the development of the SWMP. Further detailed training for environmental personnel was completed during the Environmental Annual Refresher Trainings; therefore, all personnel have been trained according to the SWMP. The environmental department facilitators are available to conduct ongoing training for smelter personnel as needed.

Sampling. The SWMP states that Doe Run will take WWTP influent monitoring as needed during operations, Monthly monitoring at MSOP locations, and special project monitoring for source reduction efforts. Doe Run has completed all required sampling. Doe Run has suspended the biotreatment pilot test at the Glover facility since all WET tests were passed during the reporting period.

Inspections. Inspections were conducted pursuant to the site-specific Stormwater Pollution Prevention Plan (SWPPP). These inspection records are kept on-site at Glover.

Recordkeeping. Doe Run has incorporated tasks described in the Glover SWMP implementation schedule into its Enterprise Task Management System ("ETMS"). The ETMS provides notification to assigned Doe Run personnel of upcoming implementation schedule deadlines. Doe Run keeps records discussed in the SWMP on-site and in the Doe Run LMS system.

Asarco/Doe Run Slag Storage Area Closures. The ASARCO storage area closure is on hold pending MDNR funding. The closure activities will begin after the funding is completed.

Plan Review and Update. The SWMP is scheduled to be reviewed and updated as needed. Progress reports will be provided as required by Paragraph 47 of the Consent Decree.

Exhibit P

EXHIBIT P

The Doe Run Resources Corporation (“Doe Run”) Multi-Media Consent Decree (“Consent Decree”)

Paragraph 47

Site-Specific Surface Water Management Plan (“SWMP”) Implementation Status Report Buick Resource Recycling Facility (“BRRD”)

Paragraph 46 of the Consent Decree required Doe Run to develop a Site-Specific Surface Water Management Plan and submit it to EPA for review. Paragraph 47 of the Consent Decree requires Doe Run to provide a summary of the progress of implementation as part of the Semi-Annual Status Report. Paragraph 48 of the Consent Decree requires Doe Run to note any modifications to its Site-Specific SWMP in the Semi-Annual Status Report.

Doe Run submitted its Site-Specific SWMP for BRRD on April 2, 2012. Doe Run received comments and a partial disapproval from EPA and MDNR on June 14, 2012. Doe Run submitted a revised Site-Specific SWMP for the Buick Resource Recycling Facility on July 16, 2012. This Status Report provides a summary of the actions conducted at BRRD.

CONSTRUCTION OF WWTP UPGRADES. On June 10, 2012 BRRD received the construction permit for the new wastewater treatment plant to be built. Construction has been completed. BRRF is operating the new Water Treatment Plant and continues to work towards optimization of the water treatment plant.

CONSTRUCTION OF ENCLOSED MATERIAL STORAGE BUILDING. Construction of the Enclosed Material Storage Building has been completed. MDNR HWP has granted temporary approval to proceed with connecting this building to the existing blast furnace feed storage building allowing full use of the building

REDIRECT LANDFILL LEACHATE FOR REUSE IN PROCESS. A Class 1 permit modification was submitted to the Missouri Department of Natural Resources Hazardous Waste Program on May 3, 2012. A phone conference with Department was on August 20, 2012 at which time several questions were raised. Our understanding at that time was to present potential projects to address those questions. A letter was submitted outlining potential projects to be used in filing an amended Class 1 permit modification on October 16, 2012. The facility is awaiting comments on potential projects presented.

NEW REVERBERATORY DRY SCRUBBER AND BAGHOUSE. BRRD is still operating the new reverberatory dry scrubber and baghouse which went on line on April 3, 2012.

CHANGE FROM SODIUM CARBONATE TO CALCIUM CARBONATE. Sodium carbonate is no longer being used to remove sulfur from the battery paste at the BDC building.

Water Transfer Line to Buick Mine Tailings Pond. BRRF began constructing a water transfer line to carry treated water from BRRF to the Buick Mine and Mill Facility for discharge on January 20, 2014. The line was operational on June 15, 2014. There is still minor work to do before the project is completed.

MONITORING, PERFORMANCE ASSESSMENT, & ADAPTIVE MANAGEMENT. SWPPP and SPCC implementation have been completed. Inspections are continuing as scheduled and records of the inspections are being maintained. All personnel have been trained according to the SWMP. There has been some minor modifications of the plan as part of the annual review. All employees received refresher training on the SWMP as part of BRRF's annual refresher training program.

Exhibit Q



**SURFACE WATER
MANAGEMENT PLAN
for the
DOE RUN COMPANY - CASTEEL FACILITY
(MSOP No. MO-0100226)**

**The Doe Run Resources Corporation
d/b/a The Doe Run Company**

**Revised
May 2014**

Introduction

This document presents a revised Surface Water Management Plan (SWMP) for The Doe Run Company Casteel Mine. The original SWMP was prepared in April 2012 and a previous revision was completed in April 2013. This revision includes the most recent data for the facility and current plans and schedule for implementation activities that will result in compliance with final Missouri State Operating Permit (MSOP MO-0100226) terms, conditions, and limitations. Previous versions of the SWMP included substantial background information on the facility that has not been included in this revision in an effort to streamline the content of this document.

Facility Description

The Casteel Mine is located in Iron County, Missouri, approximately 4 miles south of Viburnum (Figure 1-1).

Primary surface operations at the Casteel facility involve the transfer of lead, zinc and copper ore from the Casteel Mine to trucks which transport the ore to mills at other Doe Run facilities for processing. An aerial layout map of the Casteel facility is depicted in Figure 1-2. This figure shows several features relevant to this SWMP, including the following:

Main building – The main building at Casteel has offices, employee locker and change rooms, workshop and hoist operations.

Outfalls 001 and 003 – Outfalls 001 (sample ID = Casteel001) and 003 (sample ID = Casteel003) are the permitted points of discharge for mine water from the Casteel facility.

Outfall 005 – Outfall 005 is the emergency spillway from the stormwater retention basin. The retention basin will be operated in a no-discharge fashion by pumping back to the 003 mine water basin.

Mine water box – Mine water is pumped from the Casteel Mine to the surface at the mine water box, where it is diverted to mine water basins 001 and 003.

Inflow from V10 sump – A new mine water sump, called V10 sump, was recently constructed in the Casteel Mine. The V10 sump pumps mine water to the surface at a different location from the mine water box and the mine water is then conveyed to mine water basin 003 via piping.

Mine water basins 001 & 003 – Mine water diverted from the mine water box flows to either mine water basin 001 or mine water basin 003. These basins also receive storm water runoff.

Shaft No. 35 – Shaft No. 35 is the ore hoist shaft for the Casteel Mine. Ore is hoisted to the surface at this location, then placed at the ore storage/loading area located immediately north of the hoist.

Ore storage/loading area – The ore storage/loading area is where ore from the Casteel Mine is stored and loaded onto trucks for transport to mills at other Doe Run facilities.

Truck wash – The truck wash cleans vehicles leaving the facility.

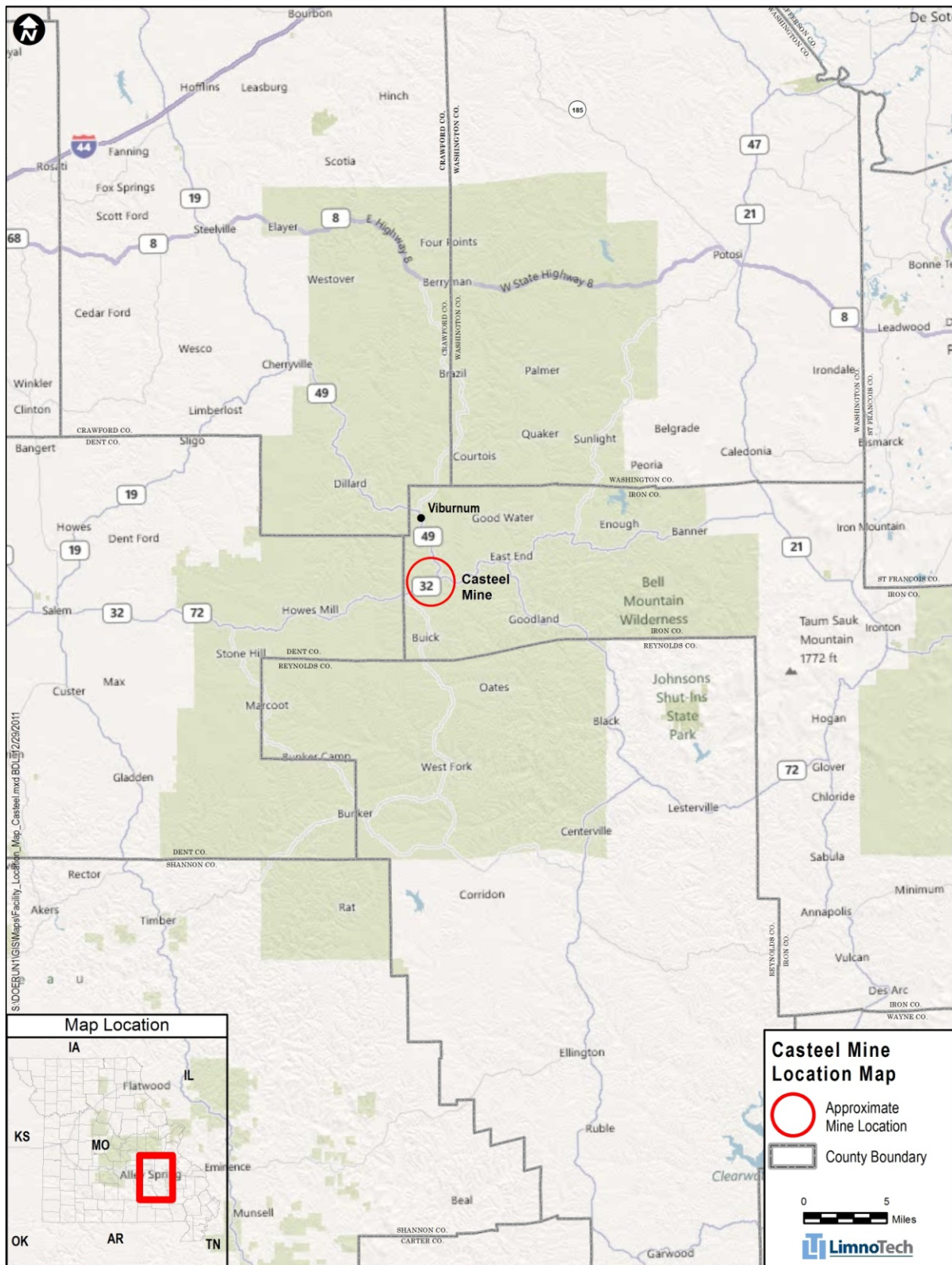


Figure 1-1. Location of the Casteel Mine.



Figure 1-2. Casteel Layout

Casteel Surface Water Management Team

Surface water management for the Casteel Mine will be the responsibility of the individuals named in Table 1-1. All of the individuals named are employees of The Doe Run Company.

Table 1-1. Casteel Mine Surface Water Management Team.

Job Title	Name	Contact Info	Role/Responsibilities
Environmental Compliance Supervisor	Amy Sanders	P.O. Box 500 Viburnum, MO 65566 573- 689-4535	Environmental data collection, management, reporting, and compliance.
EHS Regulatory Manager	Mark Cummings	P.O. Box 500 Viburnum, MO 65566 573- 244-8152	Oversight of Environmental Permitting
Mill Manager	John Boyer	P.O. Box 500 Viburnum, MO 65566 573-689-4263	Oversight and management of Doe Run mill operations
Chief Engineer	Dan Buxton	P.O. Box 500 Viburnum, MO 65566 573-244-8142	Oversight of major water management measures evaluation and design
General Maintenance Manager	Gene Hites	P.O. Box 500 Viburnum, MO 65566 573-689-4151	Management of facility maintenance issues and personnel
Environmental Engineering Supervisor	Kevin James	P.O. Box 500 Viburnum, MO 65566 573-626-2096	Oversight of wastewater treatment.
Casteel Mine Superintendent	Adam Kresler	P.O. Box 500 Viburnum, MO 65566 573-626-4217	Casteel SWMP Primary Oversight, Implementation, and Record-Keeping

Water Balance and Source Identification

This section summarizes the sources and quantities of water at the facility requiring management and treatment.

Mine Water

Most mine water from Casteel Mine is pumped to the surface at the mine water box, shown in Figure 1-2. At the mine water box, flow is split to the two mine water basins, 001 and 003. Average mine water flow rates are estimated to be 4.03 MGD (~2,800 gpm). In addition, a new mine water sump, called the V10 sump, was recently constructed in Casteel Mine to provide additional dewatering capacity in support of planned mining activities. Mine water pumped from the v10 sump is piped above ground to mine water basin 003. Average mine water flow rates from the V10 sump are estimated to be 3.74 MGD (~2,600 gpm).

Currently, following treatment in the mine water basins, mine water is discharged to Crooked Creek at outfalls 001 and 003.

Precipitation and Stormwater Runoff

The average annual rainfall for the area is 38 inches. Figure 2-1 shows the drainage areas contributing stormwater runoff to the mine water basins. The total volume of direct precipitation and stormwater runoff requiring management and treatment was estimated to be 0.01 MGD at Basin 001 and 0.037 MGD at Basin 003 on an average annual basis. Runoff during large storm events is substantially larger. The total volume of water resulting from a 10-yr, 24-hr rainfall event is 3.6 MG. This includes watershed runoff and direct precipitation on the mine water basins.

Mine Water Transfer to Viburnum

In an effort to obtain cost-efficiencies by building fewer, larger treatment plants, mine water pumped to the surface at the Casteel Mine will be transferred via aboveground pumping and piping to Viburnum for treatment. A conceptual layout of the water transfer is presented in Figure 2-2. The current estimate of the transfer of mine water from Casteel to Viburnum is 7.78 MGD (~5,400 gpm).

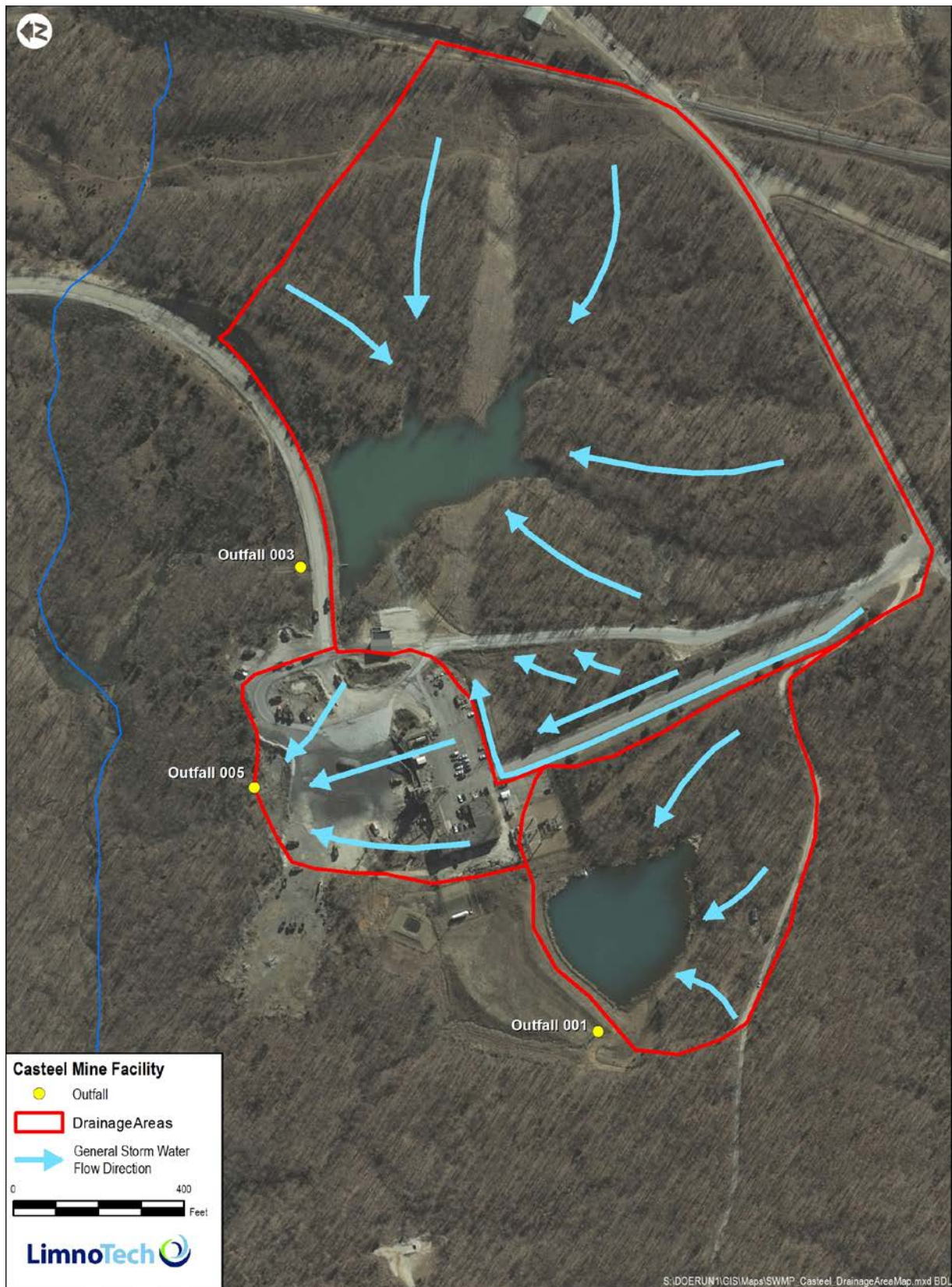


Figure 2-3. Stormwater Drainage Areas and Flow Paths at the Casteel Mine.

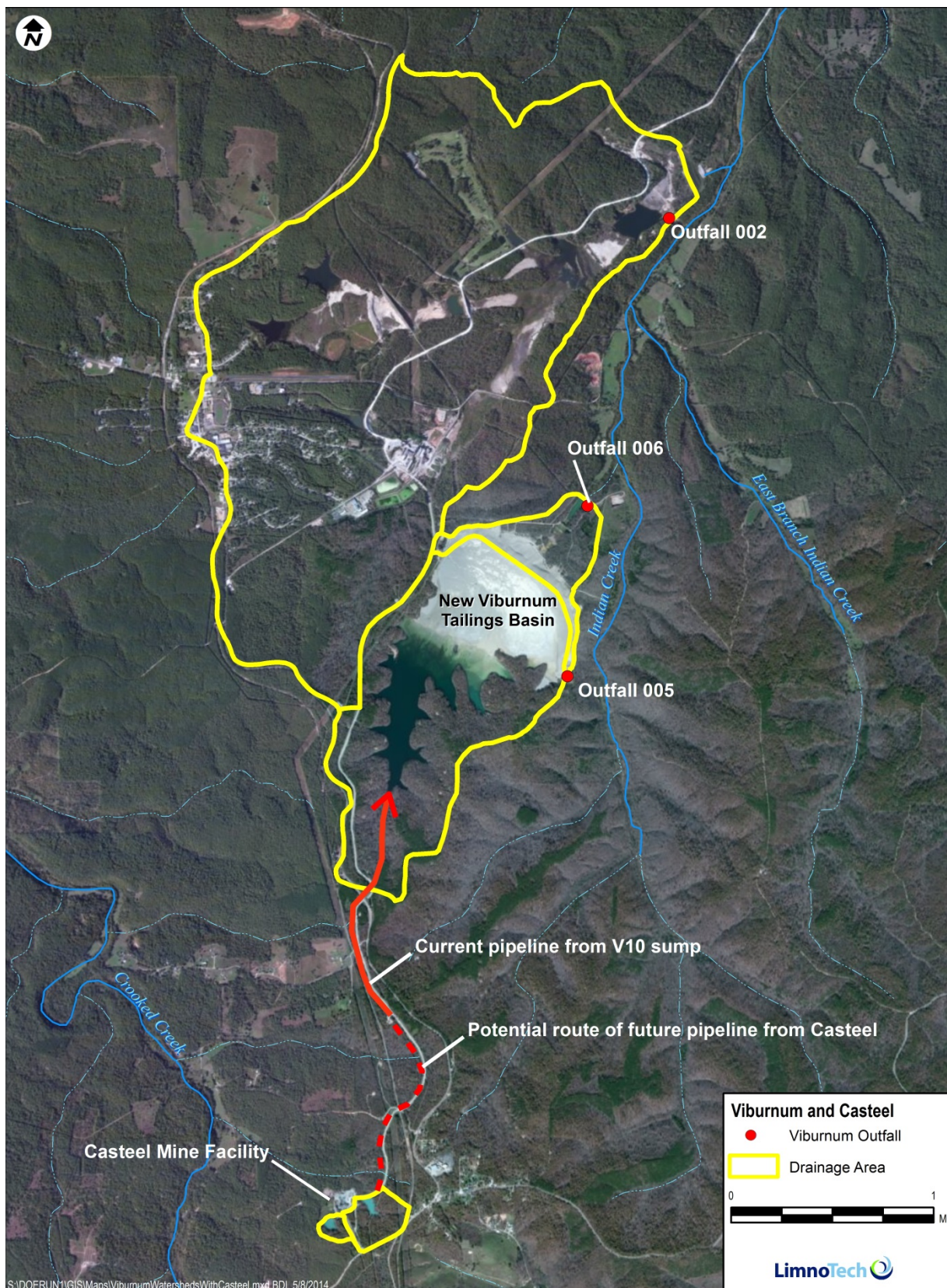


Figure 2-4. Layout of Mine Water Transfer from Casteel to Viburnum.

Facility Water Balance

A schematic of the water balance and proposed treatment system for the facility is presented in Figure 2-3.

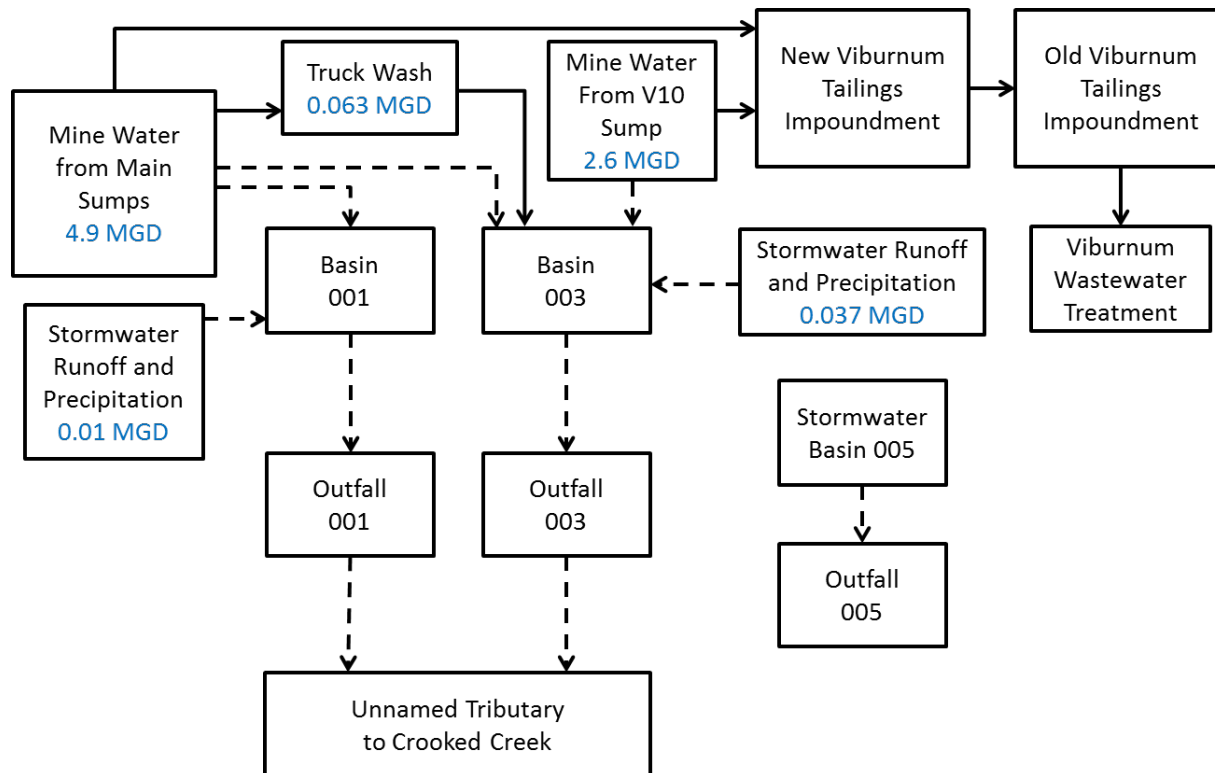


Figure 2-5. Water Balance and Conceptual Treatment Schematic.

2.5 Water Quality Monitoring

Water quality monitoring has been conducted at the Casteel Mine as required by the MSOP as well as additional monitoring to support the SWMP. Water quality data for select parameters collected from February 2012 through April 2014 are displayed in the figures below. These data are being used to evaluate surface water management practices and treatment needs at the facility. Supplemental monitoring may be performed to evaluate various water management measures and treatment requirements. The sampling locations presented in the figures include:

- Outfall 001: Permit-required monitoring;
- Outfall 003: Permit-required monitoring;
- CS-MW001: Mine water pumped to the surface;
- CS-MW003: Mine water pumped to the surface;
- CS-V10SUMPEFFSUR: Mine water pumped to the surface; and
- CS-TWEFF: Truck wash effluent.

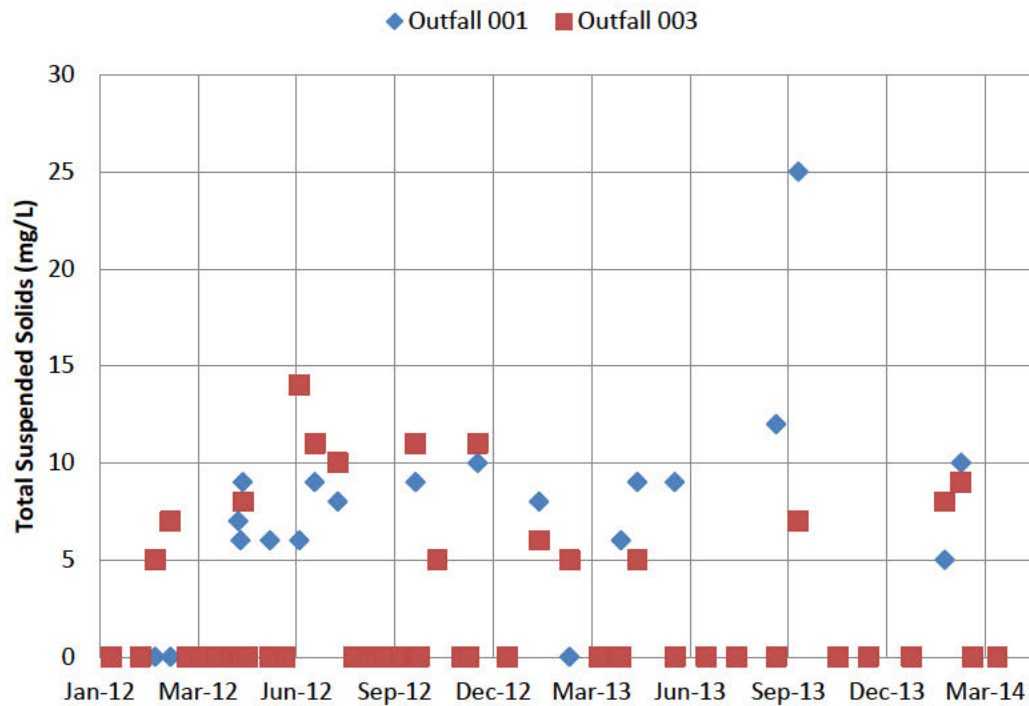


Figure 2-6. Monitoring of TSS at Outfall Sampling Locations.

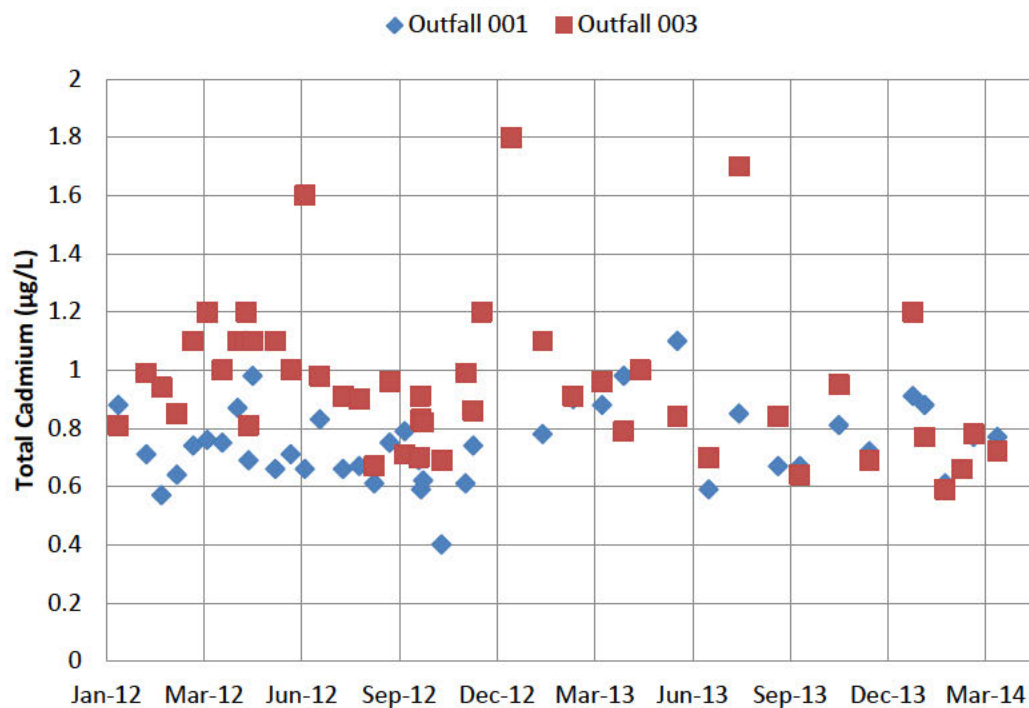


Figure 2-7. Monitoring of Cadmium at Outfall Sampling Locations.

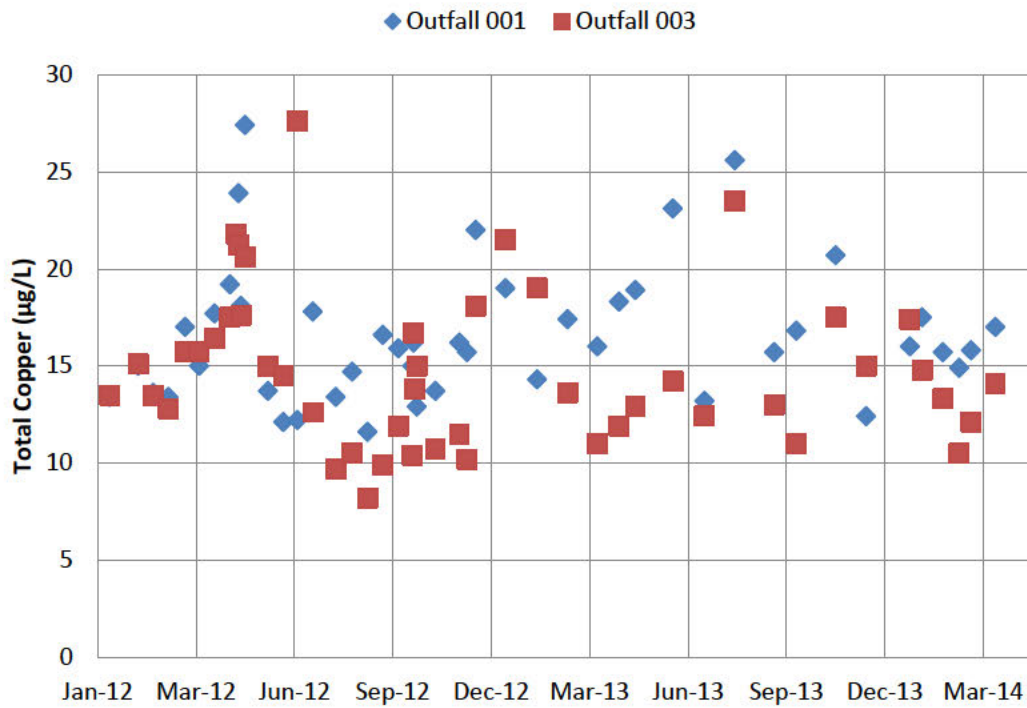


Figure 2-8. Monitoring of Copper at Outfall Sampling Locations.

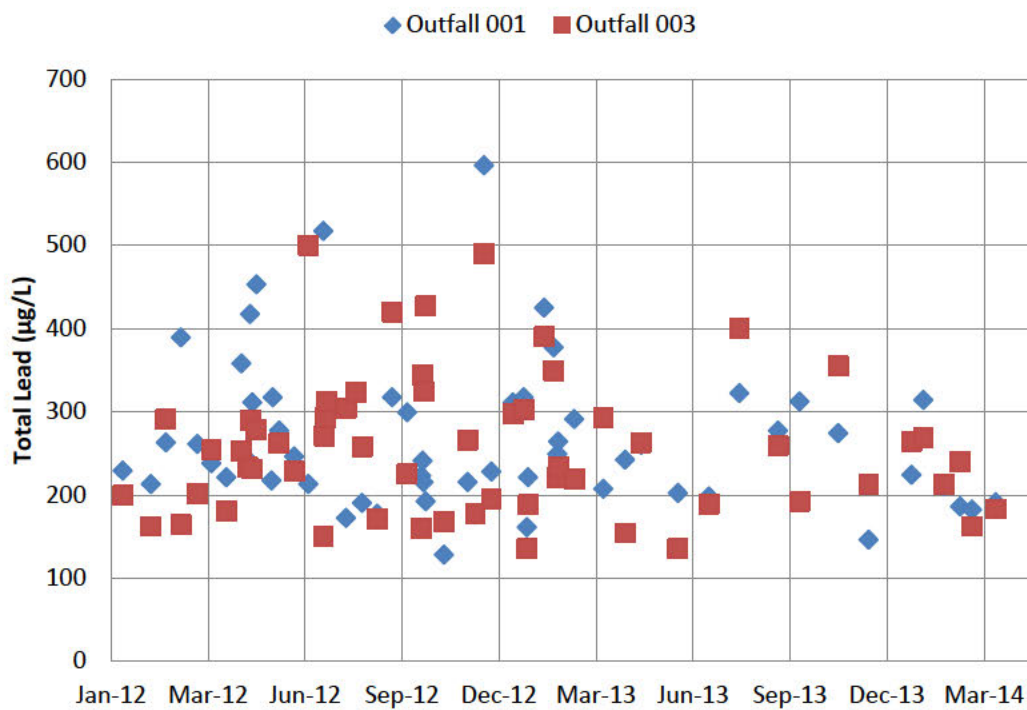


Figure 2-9. Monitoring of Lead at Outfall Sampling Locations.

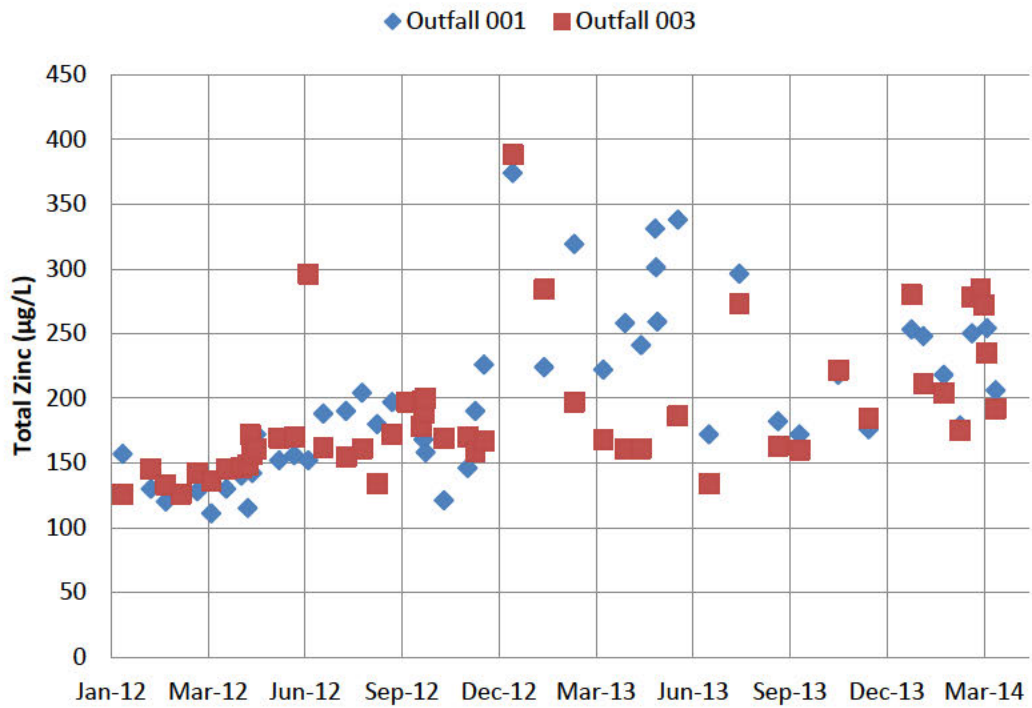


Figure 2-10. Monitoring of Zinc at Outfall Sampling Locations.

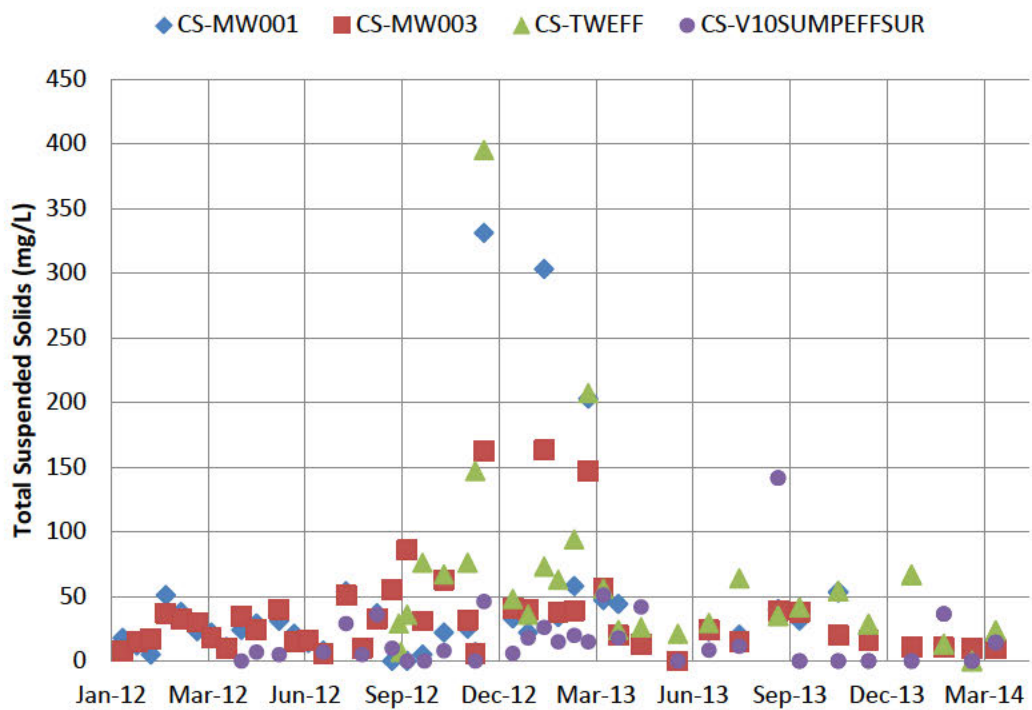


Figure 2-9. Monitoring of TSS at Surface Sampling Locations.

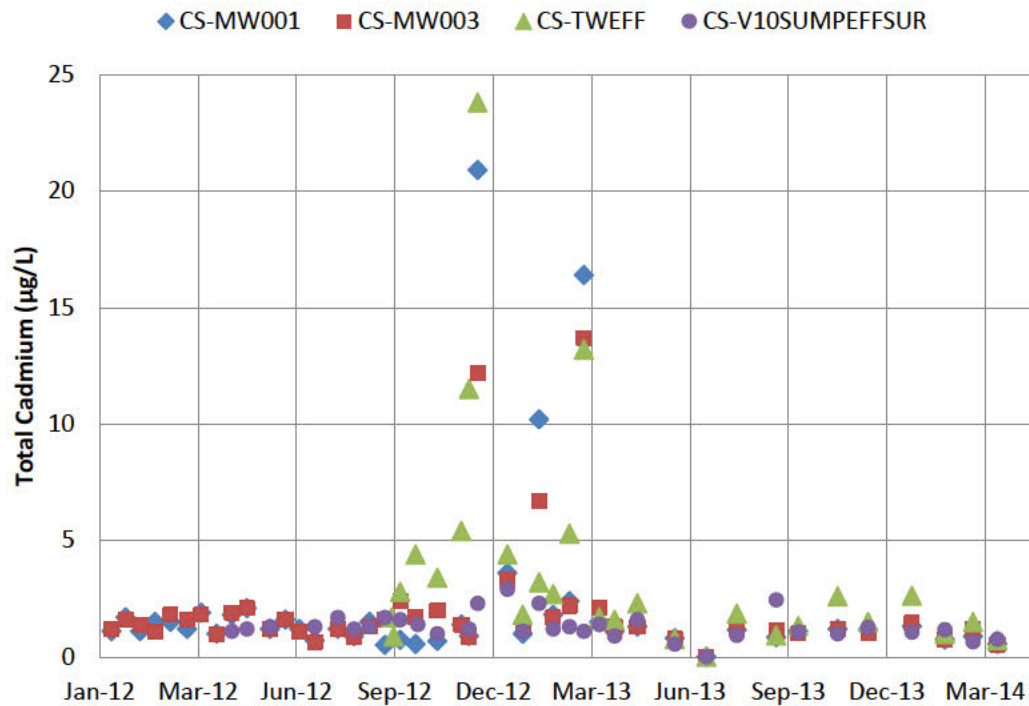


Figure 2-10. Monitoring of Cadmium at Surface Sampling Locations.

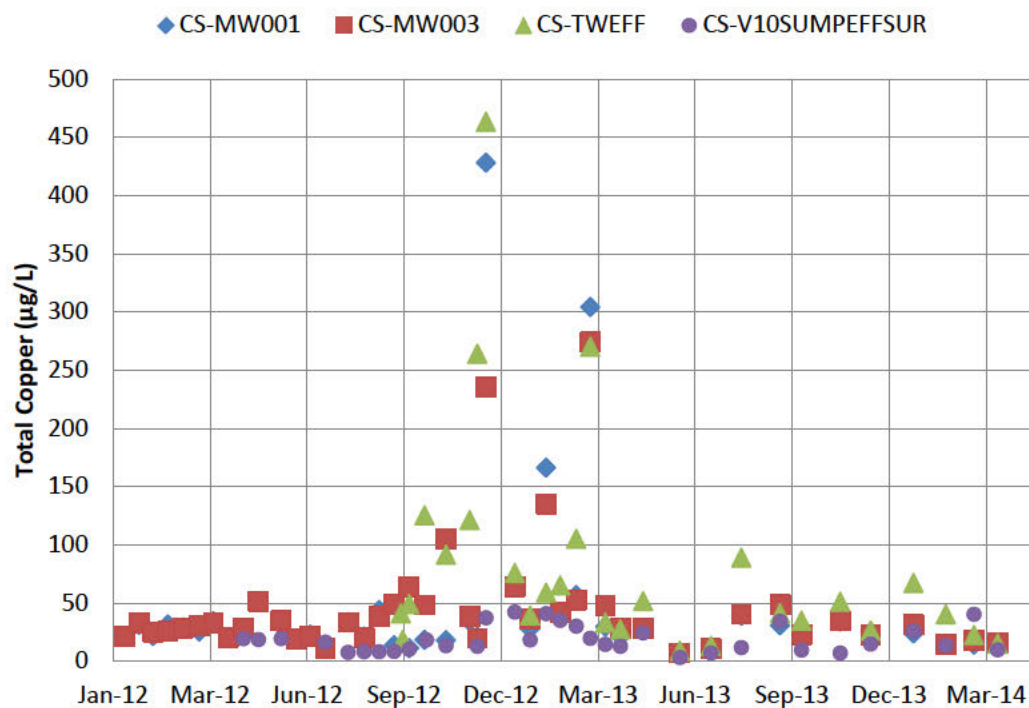


Figure 2-11. Monitoring of Copper at Surface Sampling Locations.

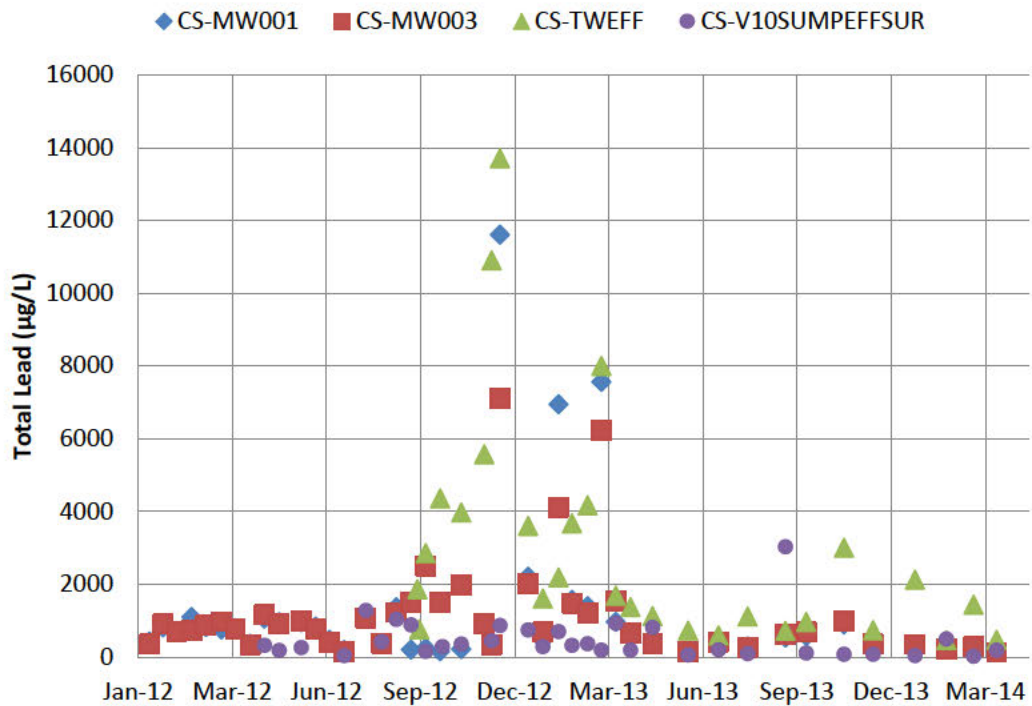


Figure 2-12. Monitoring of Lead at Surface Sampling Locations.

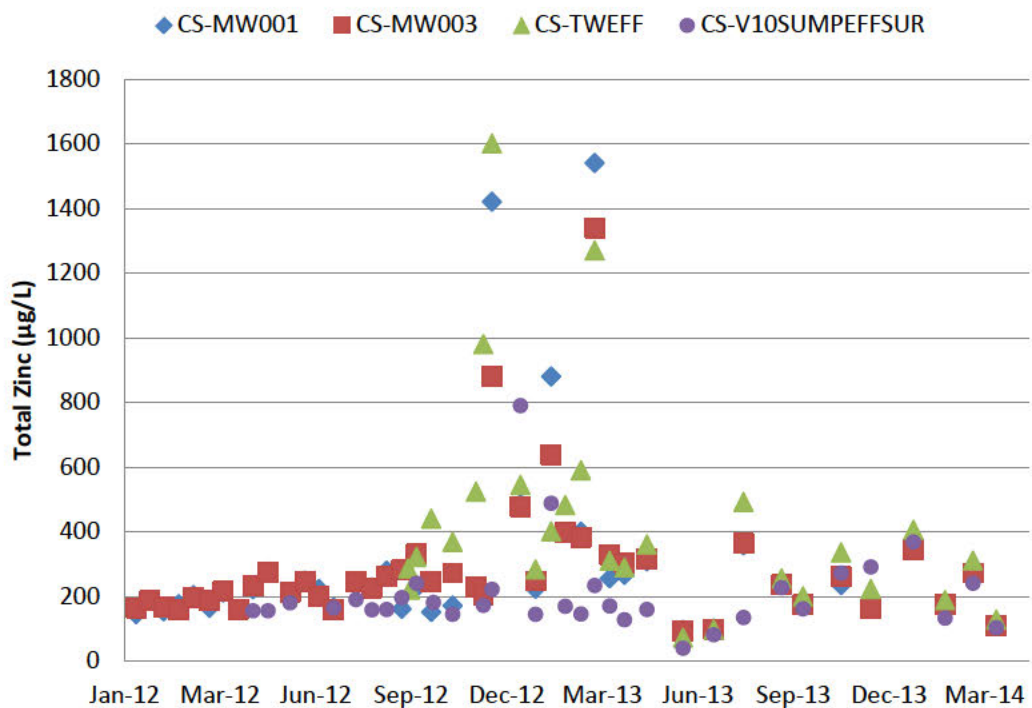


Figure 2-13. Monitoring of Zinc at Surface Sampling Locations.

Plan Implementation

Implementation activities to attain compliance with MSOP terms, conditions, and final effluent limitations are detailed in this section. A schedule for these activities is also included. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Completed Activities

Several activities have already been completed that support the effort to comply with MSOP terms, conditions and final effluent limitations. These include but are not limited to the following:

Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP);
Flow and water quality monitoring underground and on the surface;
Resolution of permit appeal issues addressing various concerns, including establishment of final effluent limits based on site-specific hardness and dissolved metal translator information;
Development of the Underground Water Management Plan (UWMP) and the SWMP and an annual revision;
SWPPP, UWMP and SWMP training;
Implementation of underground BMPs underground;
Completion of multiple treatability studies to evaluate chemical/physical treatment and biotreatment alternatives;
Pilot testing to assess benefits of mine water transfers to the New Viburnum tailings impoundment;
Preparation and submittal of antidegradation reviews for water transfers between facilities;
Contracting, design, permitting and construction of a treatment plant at Brushy Creek Mine/Mill, gaining valuable experience with full-scale construction and operation of the selected CoMag treatment process; and
Construction of the stormwater basin to collect stormwater flows from the ore loading area and transfer such flows to mine water basin 003.

Planned Activities

The following activities are planned in order to optimize the overall treatment system and meet final MSOP limits:

1. Ongoing transfer of mine water to assess the effects of Casteel V10 sump water on Old Viburnum tailings impoundment water after it has undergone treatment by settling at the New Viburnum tailings impoundment and then additional settling at the Old Viburnum tailings pond.
2. A pipeline from Casteel to Viburnum will be constructed concurrently with the construction of the wastewater treatment plant. Prior to construction of the pipeline, an assessment will be made to determine if a land disturbance permit is required.
3. Upon completion of the construction of the Viburnum treatment facility, all mine water from Casteel Mine will be pumped and piped to Viburnum for treatment.

Schedule

A schedule of the planned implementation activities has been prepared and is presented in Figure 3-1. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Figure 3-1. Implementation Schedule

[illegible]

Exhibit R



**SURFACE WATER
MANAGEMENT PLAN
for the
DOE RUN COMPANY - CASTEEL FACILITY
(MSOP No. MO-0100226)**

**The Doe Run Resources Corporation
d/b/a The Doe Run Company**

**Revised
May 2014**

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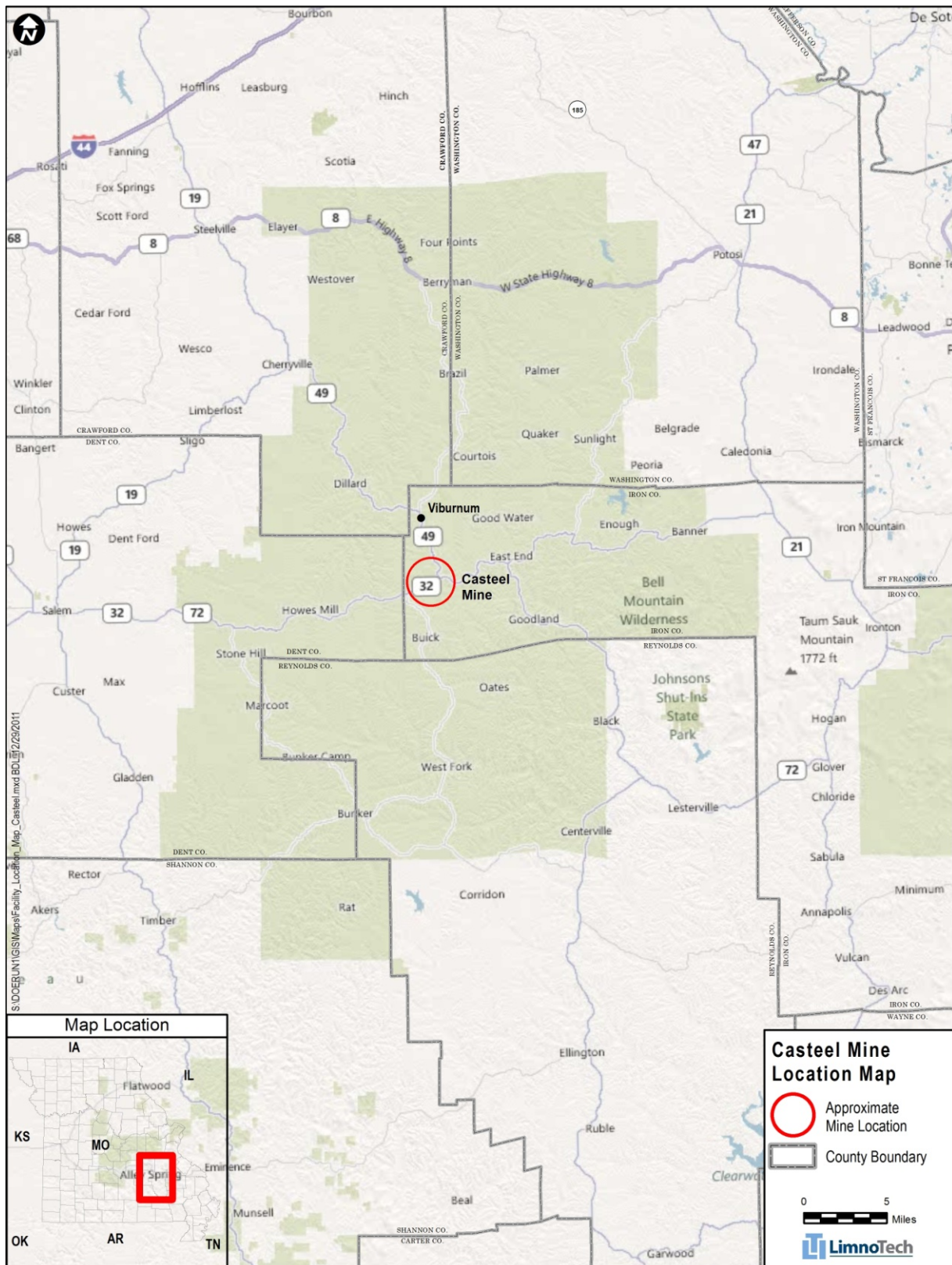


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Mine Water Transfer to Viburnum

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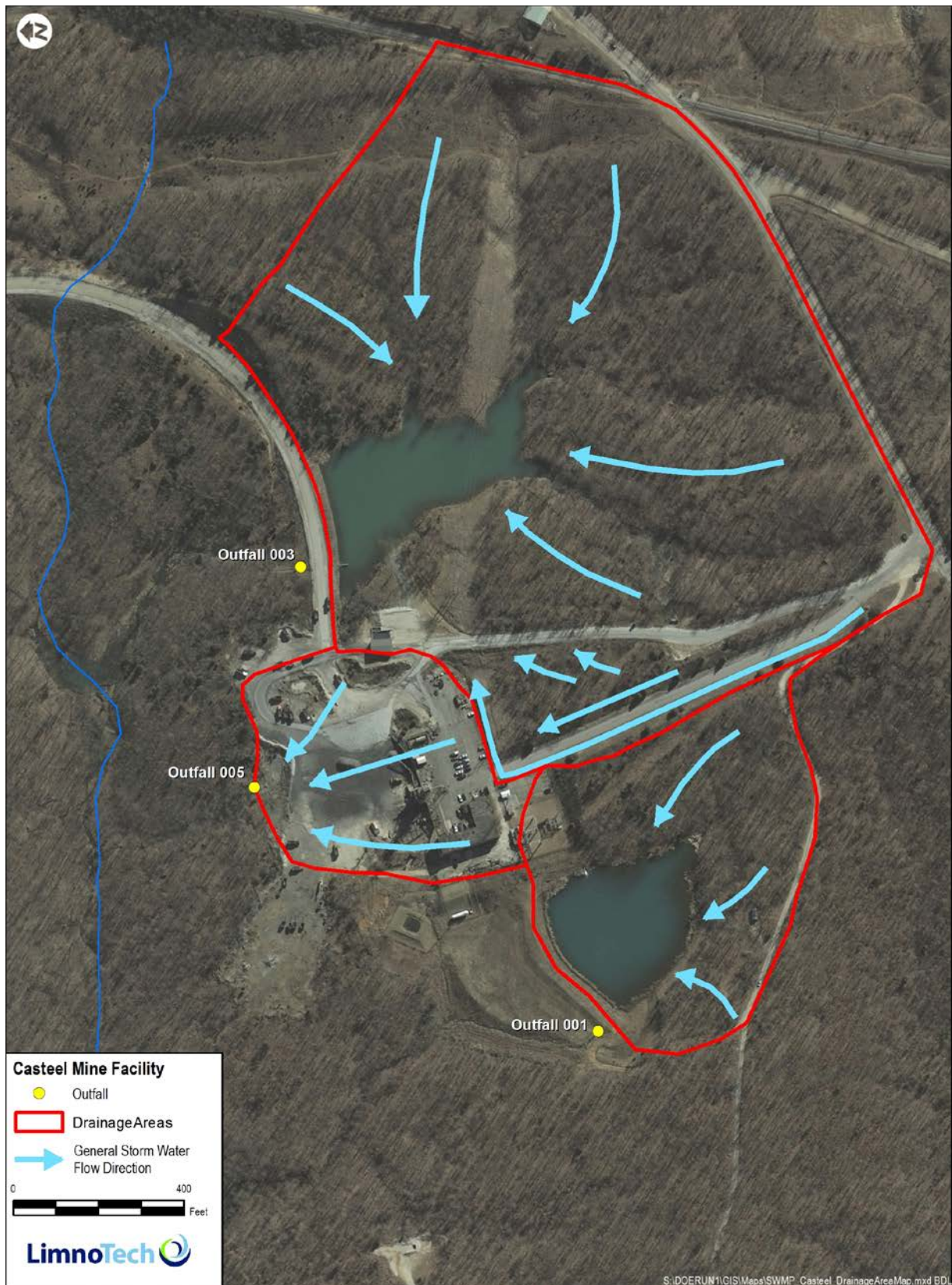


Figure 2-13. Stormwater Drainage Areas and Flow Paths at the Casteel Mine.

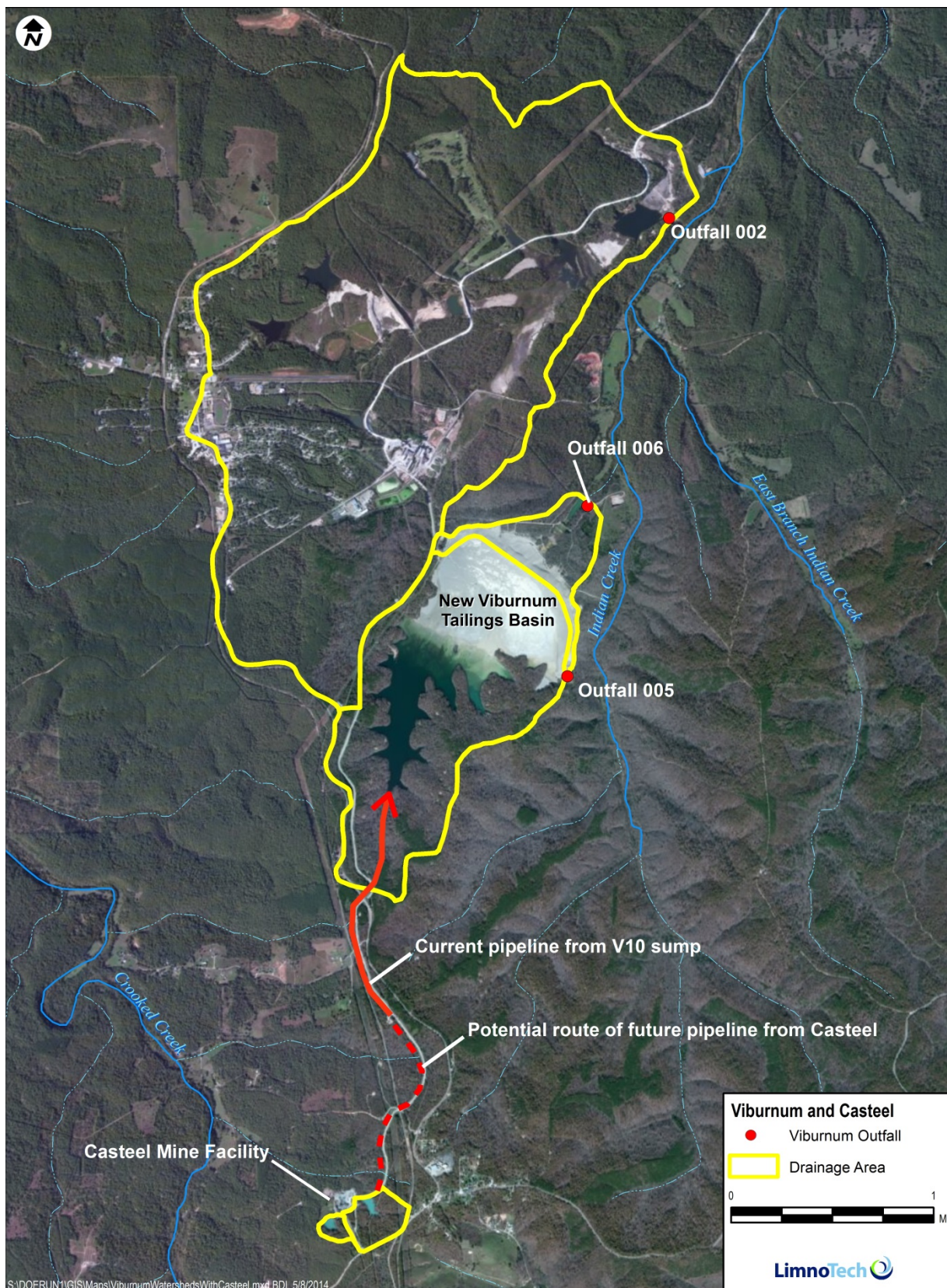


Figure 2-14. Layout of Mine Water Transfer from Casteel to Viburnum.

Facility Water Balance

A schematic of the water balance and proposed treatment system for the facility is presented in Figure 2-3.

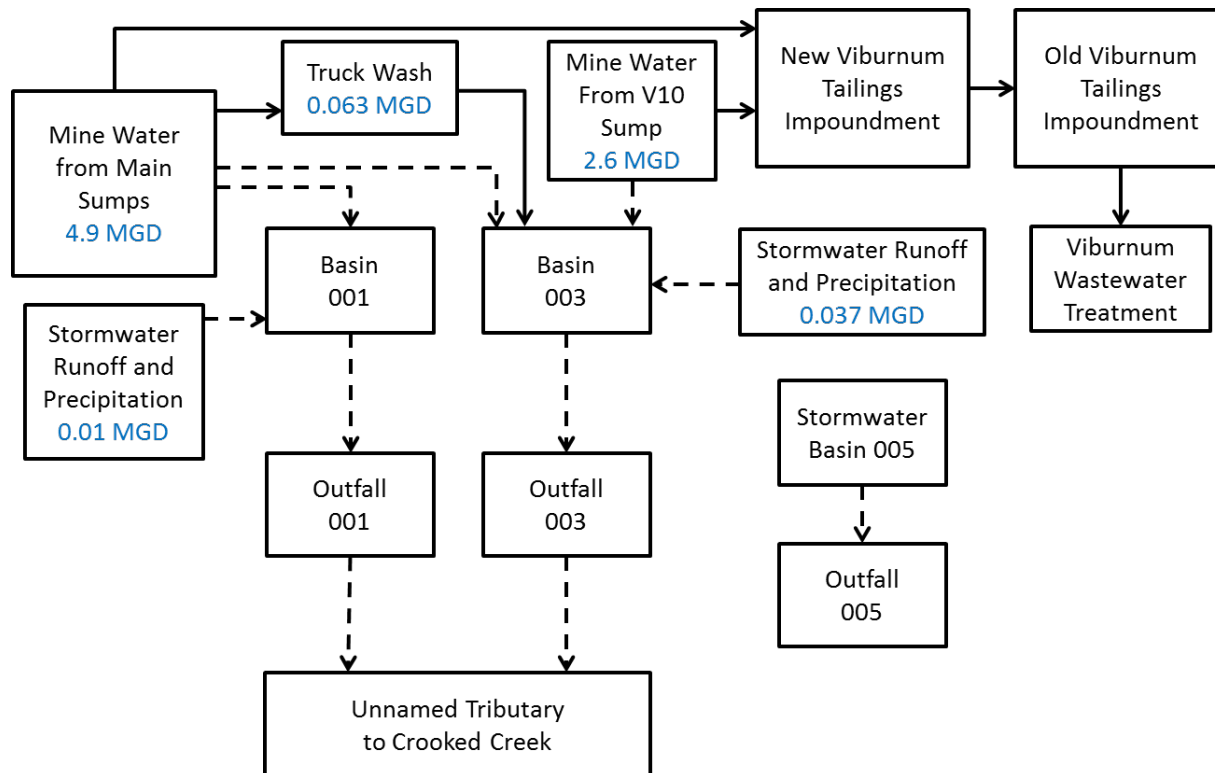


Figure 2-15. Water Balance and Conceptual Treatment Schematic.

2.5 Water Quality Monitoring

Water quality monitoring has been conducted at the Casteel Mine as required by the MSOP as well as additional monitoring to support the SWMP. Water quality data for select parameters collected from February 2012 through April 2014 are displayed in the figures below. These data are being used to evaluate surface water management practices and treatment needs at the facility. Supplemental monitoring may be performed to evaluate various water management measures and treatment requirements. The sampling locations presented in the figures include:

- Outfall 001: Permit-required monitoring;
- Outfall 003: Permit-required monitoring;
- CS-MW001: Mine water pumped to the surface;
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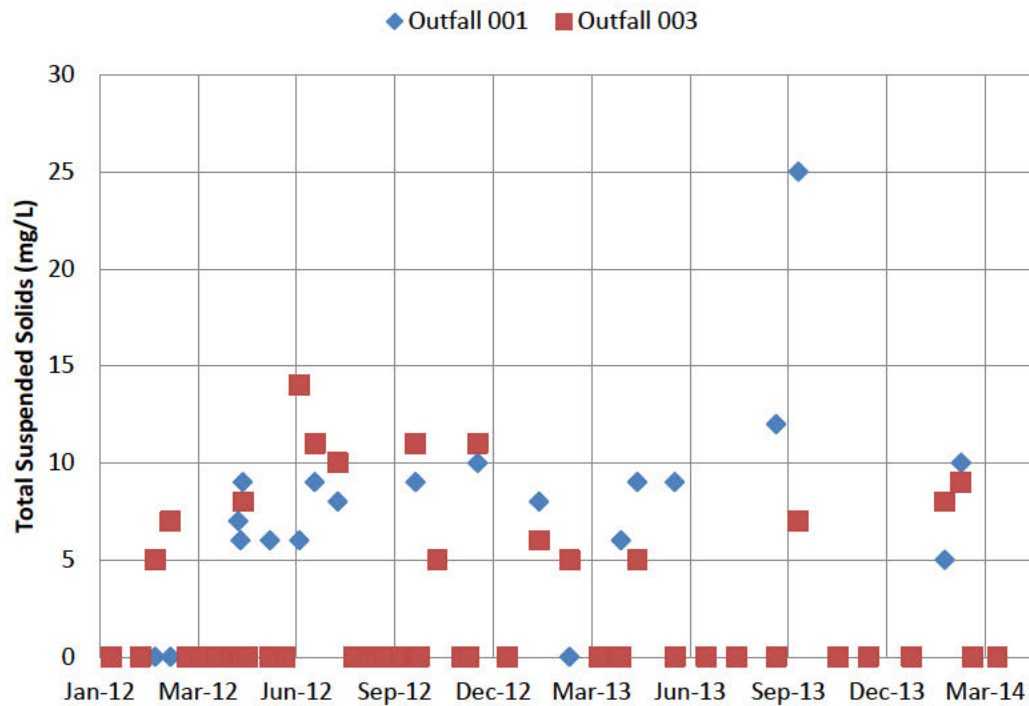


Figure 2-16. Monitoring of TSS at Outfall Sampling Locations.

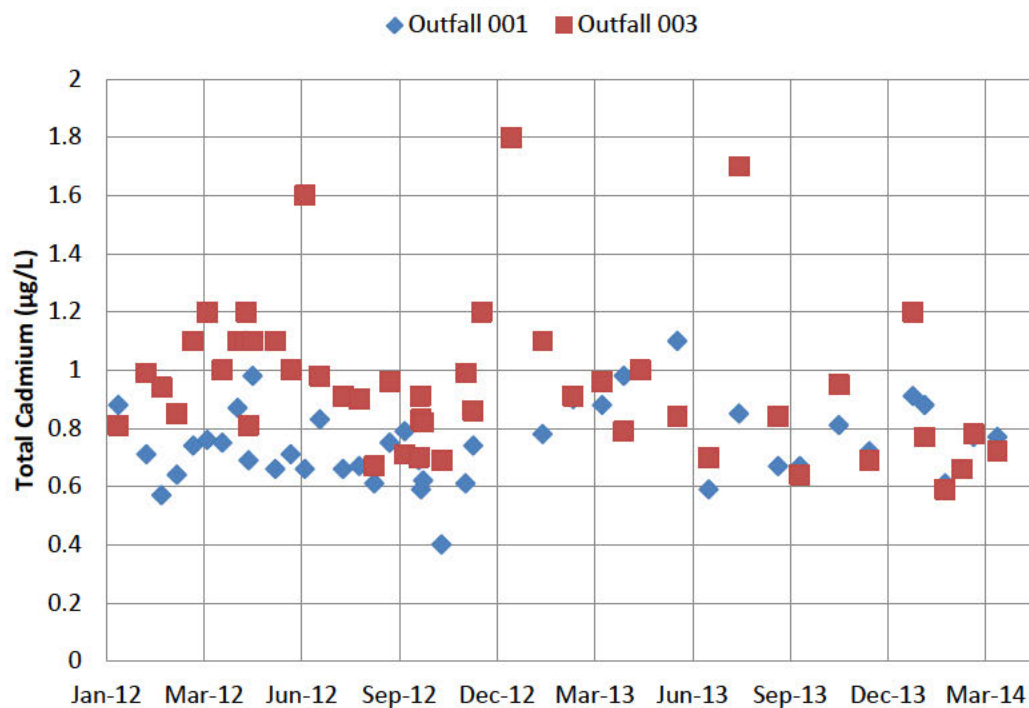


Figure 2-17. Monitoring of Cadmium at Outfall Sampling Locations.

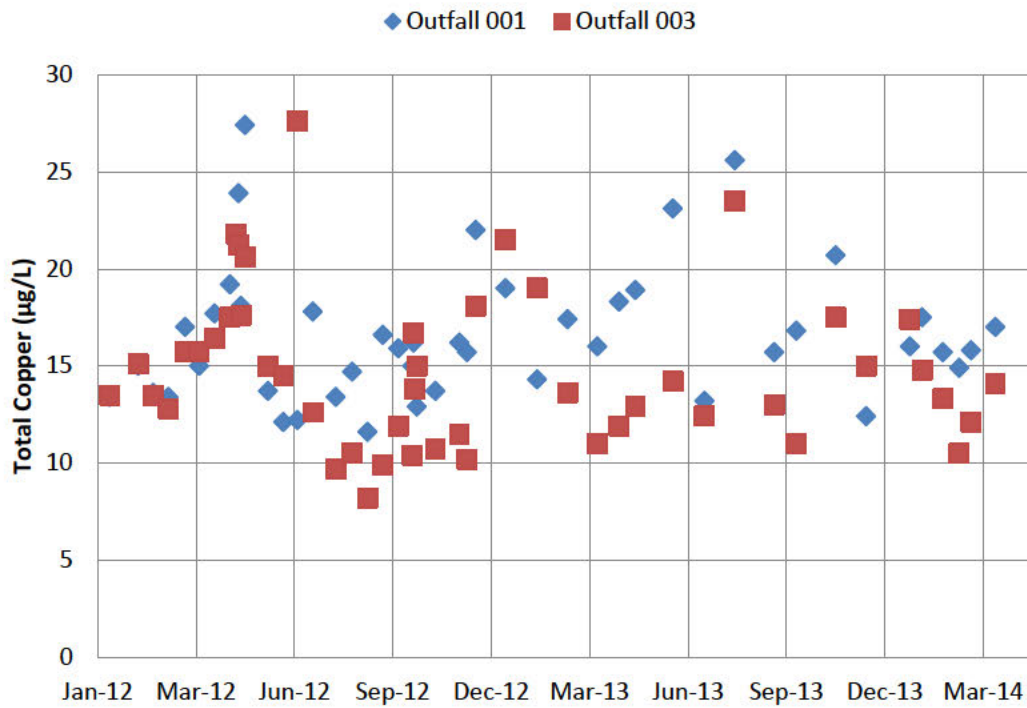


Figure 2-18. Monitoring of Copper at Outfall Sampling Locations.

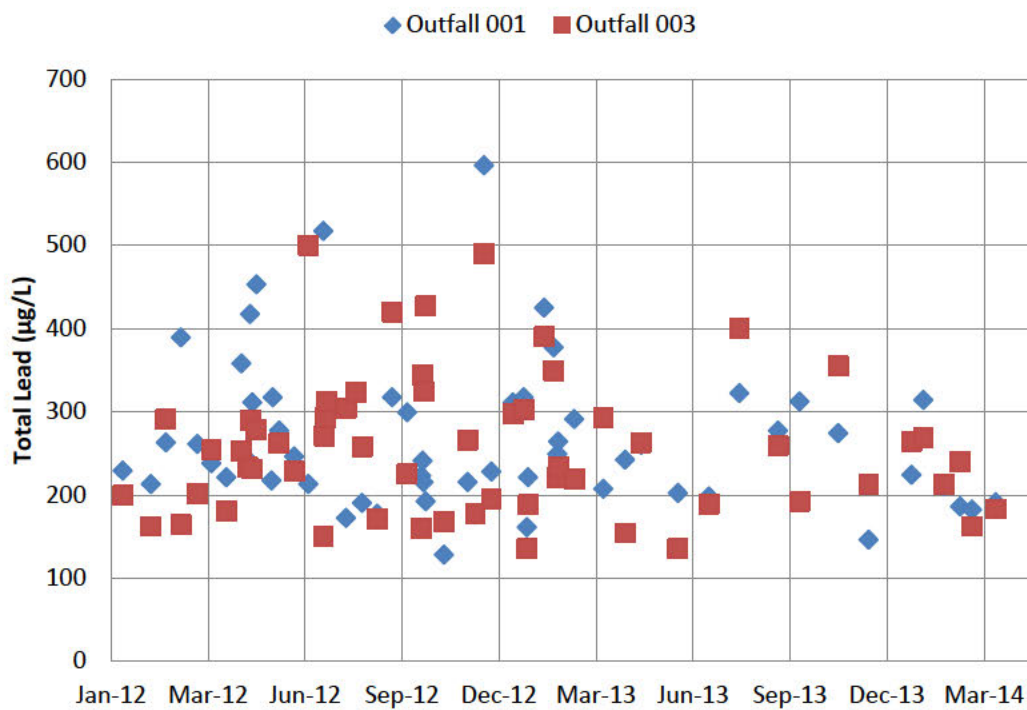


Figure 2-19. Monitoring of Lead at Outfall Sampling Locations.

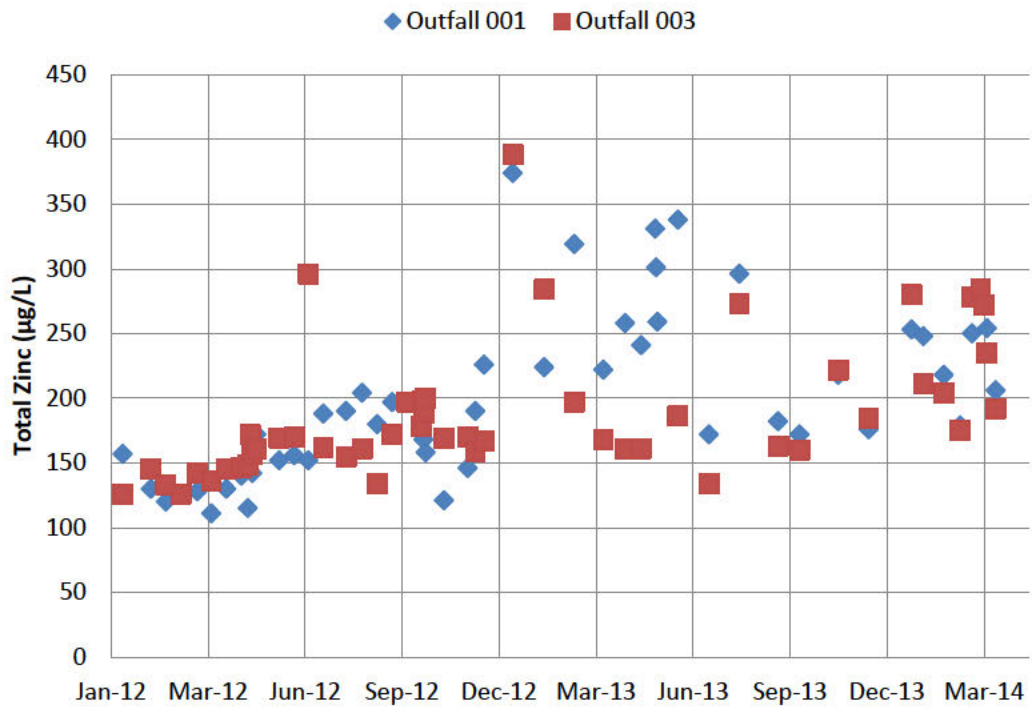


Figure 2-20. Monitoring of Zinc at Outfall Sampling Locations.

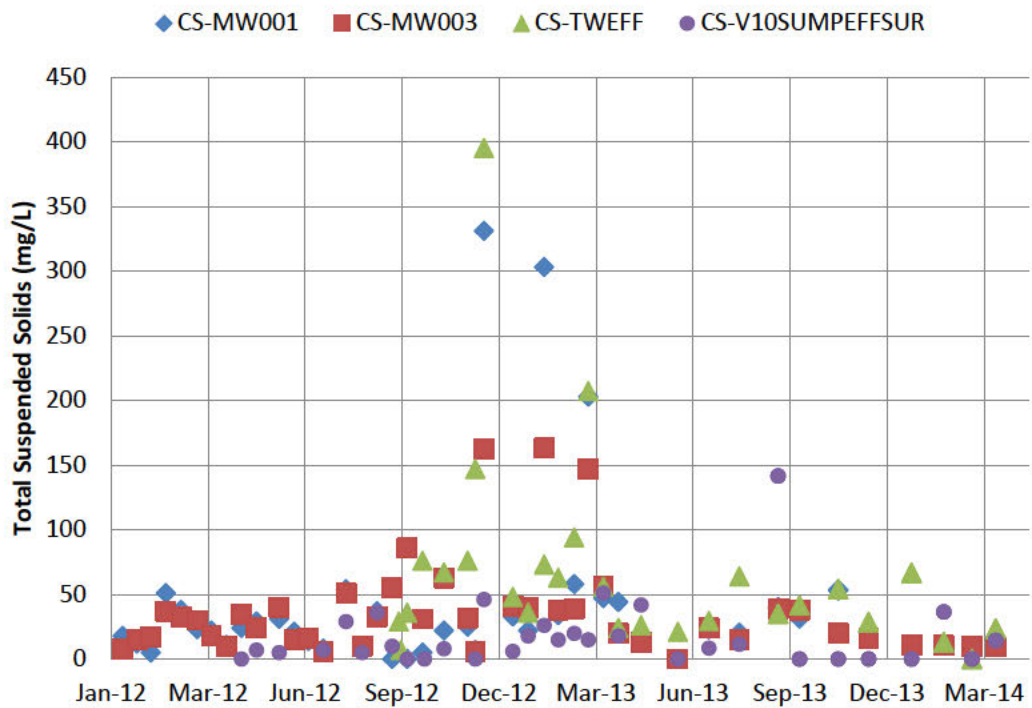


Figure 2-9. Monitoring of TSS at Surface Sampling Locations.

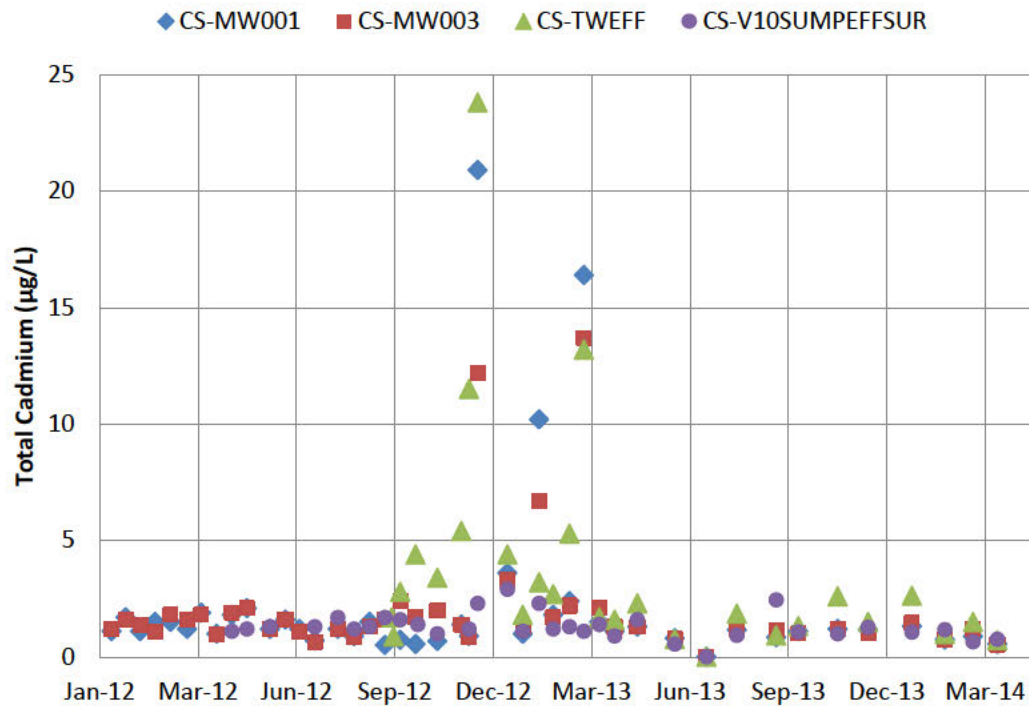


Figure 2-10. Monitoring of Cadmium at Surface Sampling Locations.

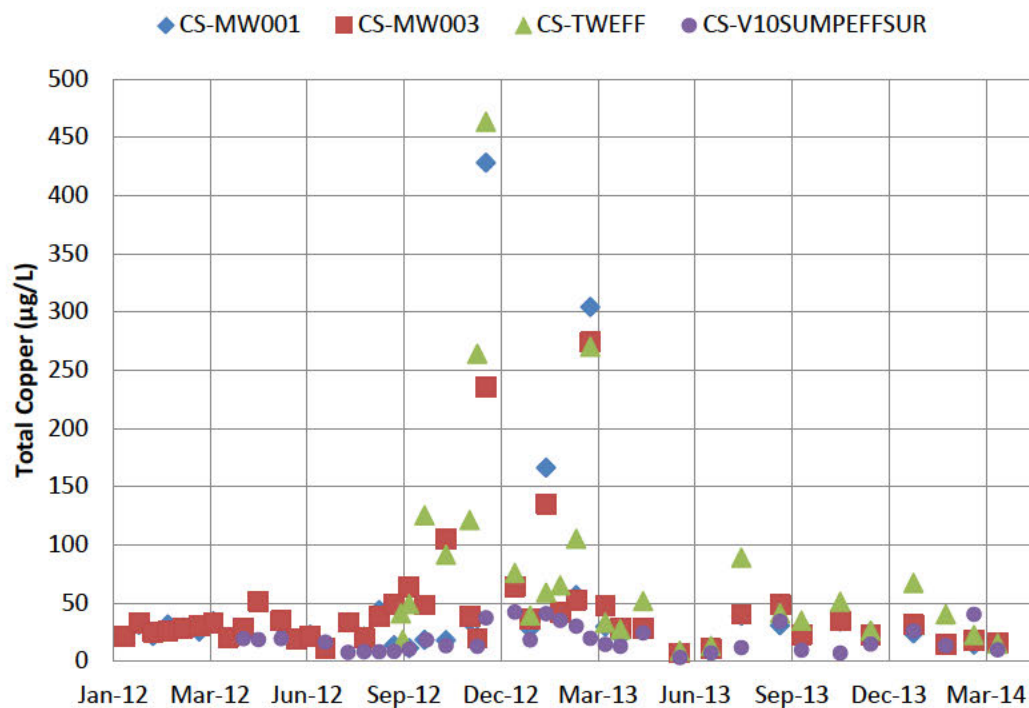


Figure 2-11. Monitoring of Copper at Surface Sampling Locations.

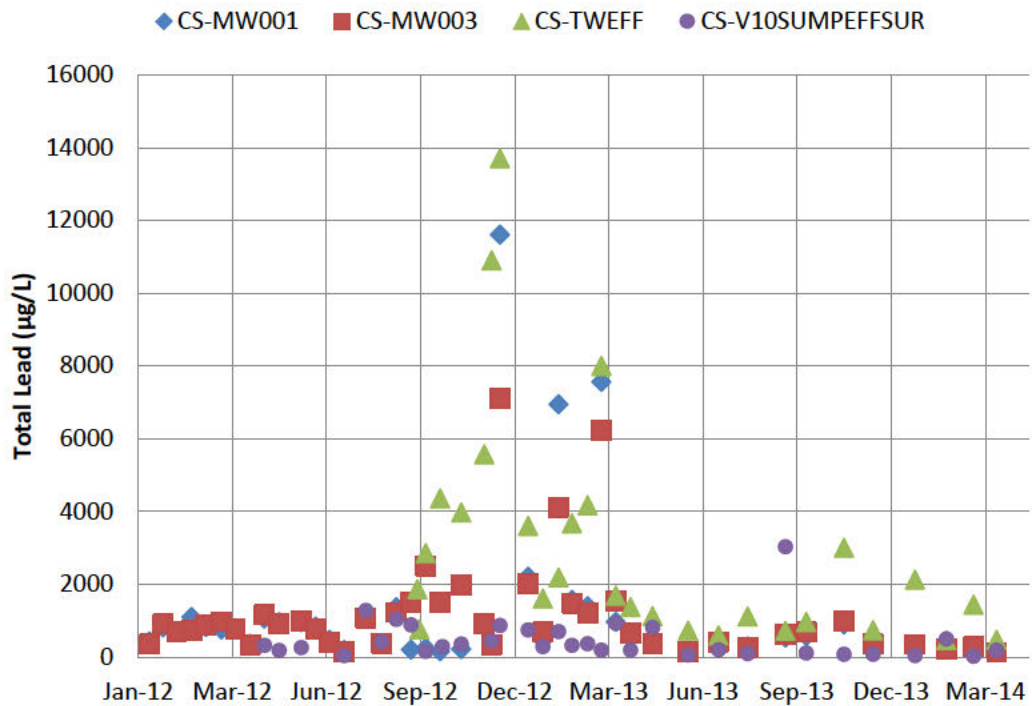


Figure 2-12. Monitoring of Lead at Surface Sampling Locations.

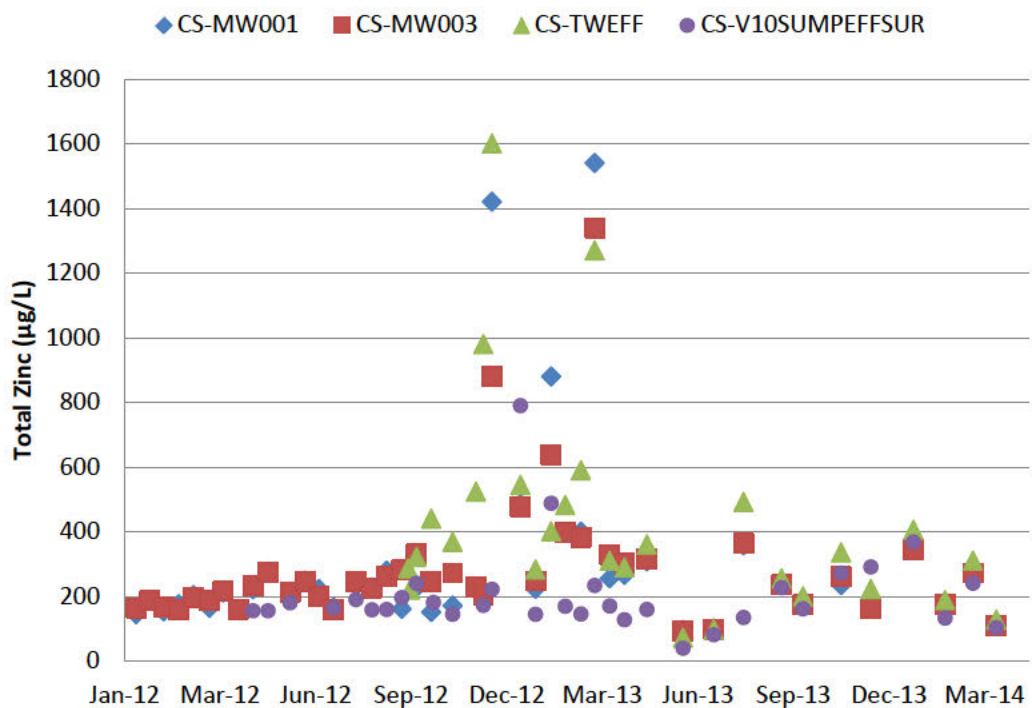


Figure 2-13. Monitoring of Zinc at Surface Sampling Locations.

Plan Implementation

Implementation activities to attain compliance with MSOP terms, conditions, and final effluent limitations are detailed in this section. A schedule for these activities is also included. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Completed Activities

Several activities have already been completed that support the effort to comply with MSOP terms, conditions and final effluent limitations. These include but are not limited to the following:

Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP);
Flow and water quality monitoring underground and on the surface;
Resolution of permit appeal issues addressing various concerns, including establishment of final effluent limits based on site-specific hardness and dissolved metal translator information;
Development of the Underground Water Management Plan (UWMP) and the SWMP and an annual revision;
SWPPP, UWMP and SWMP training;
Implementation of underground BMPs underground;
Completion of multiple treatability studies to evaluate chemical/physical treatment and biotreatment alternatives;
Pilot testing to assess benefits of mine water transfers to the New Viburnum tailings impoundment;
Preparation and submittal of antidegradation reviews for water transfers between facilities;
Contracting, design, permitting and construction of a treatment plant at Brushy Creek Mine/Mill, gaining valuable experience with full-scale construction and operation of the selected CoMag treatment process; and
Construction of the stormwater basin to collect stormwater flows from the ore loading area and transfer such flows to mine water basin 003.

Planned Activities

The following activities are planned in order to optimize the overall treatment system and meet final MSOP limits:

4. Ongoing transfer of mine water to assess the effects of Casteel V10 sump water on Old Viburnum tailings impoundment water after it has undergone treatment by settling at the New Viburnum tailings impoundment and then additional settling at the Old Viburnum tailings pond.
5. A pipeline from Casteel to Viburnum will be constructed concurrently with the construction of the wastewater treatment plant. Prior to construction of the pipeline, an assessment will be made to determine if a land disturbance permit is required.
6. Upon completion of the construction of the Viburnum treatment facility, all mine water from Casteel Mine will be pumped and piped to Viburnum for treatment.

Schedule

A schedule of the planned implementation activities has been prepared and is presented in Figure 3-1. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Figure 3-1. Implementation Schedule

[illegible]

Exhibit S



**SURFACE WATER
MANAGEMENT PLAN
for the
DOE RUN COMPANY - BUICK MINE/MILL
(MSOP No. MO-002003)**

**The Doe Run Resources Corporation
d/b/a The Doe Run Company**

**Revised
May 2014**

Introduction

This document presents a revised Surface Water Management Plan (SWMP) for The Doe Run Company Buick Mine/Mill. The original SWMP was prepared in June 2012 and a previous revision was completed in May 2013. This revision includes the most recent data for the facility and current plans and schedule for implementation activities that will result in compliance with final Missouri State Operating Permit (MSOP MO-0002003) terms, conditions, and limitations. Previous versions of the SWMP included substantial background information on the facility that has not been included in this revision in an effort to streamline the content of this document.

Facility Description

Primary surface operations at the Buick facility involve the milling of lead, zinc and copper ore from the Buick Mine and the Casteel and Viburnum 29 mines. An aerial layout map of the Buick facility is depicted in Figure 1-2 and a more detailed view of the facility is shown in Figure 1-3. These figures show several features relevant to this SWMP, including the following:

Mine water basin – Mine water is pumped up the service shaft to the mine water tank and drains from there to the mine water basin. Water can also be pumped from the mine water basin back to the water tank and/or to the mill. The mine water basin also receives stormwater runoff from the drainage area surrounding the basin. Water collected in the mine water basin undergoes treatment via settling.

Tailings impoundment – The tailings impoundment receives water from the mine water basin; process wastewater (tailings) from the milling of lead, copper, and zinc ore; truck wash water and stormwater runoff from the surrounding drainage area. Water collected in the impoundment undergoes treatment via settling.

Mill – The mill is where ore milling occurs. The primary product of the milling process is ore concentrate or “con”, which is stored in the concentrate storage building (also shown on Figure 1-3) and then trucked off-site. The main by-product of the milling process is tailings, which are pumped to the tailings impoundment on site.

Office building – The office building at Buick has offices, employee lockers and change rooms and hoist operations.

Outfall 001 – Outfall 001 is the permitted outfall for the three-cell lagoon used to treat domestic wastewater at the Buick facility. Outfall 001 discharges to the tailings impoundment and does not discharge directly to receiving waters.

Outfall 002 – Outfall 002 (sample ID = BuickM002) is the permitted point for surface water discharge from the Buick facility. Mine water, tailings impoundment water, and stormwater are discharged through outfall 002 after undergoing treatment via settling and routing through the meander system and clear water basin.

Truck washes – There are two truck washes at the Buick facility to clean vehicles leaving the facility: the ore truck wash and the concentrate (con) truck wash.

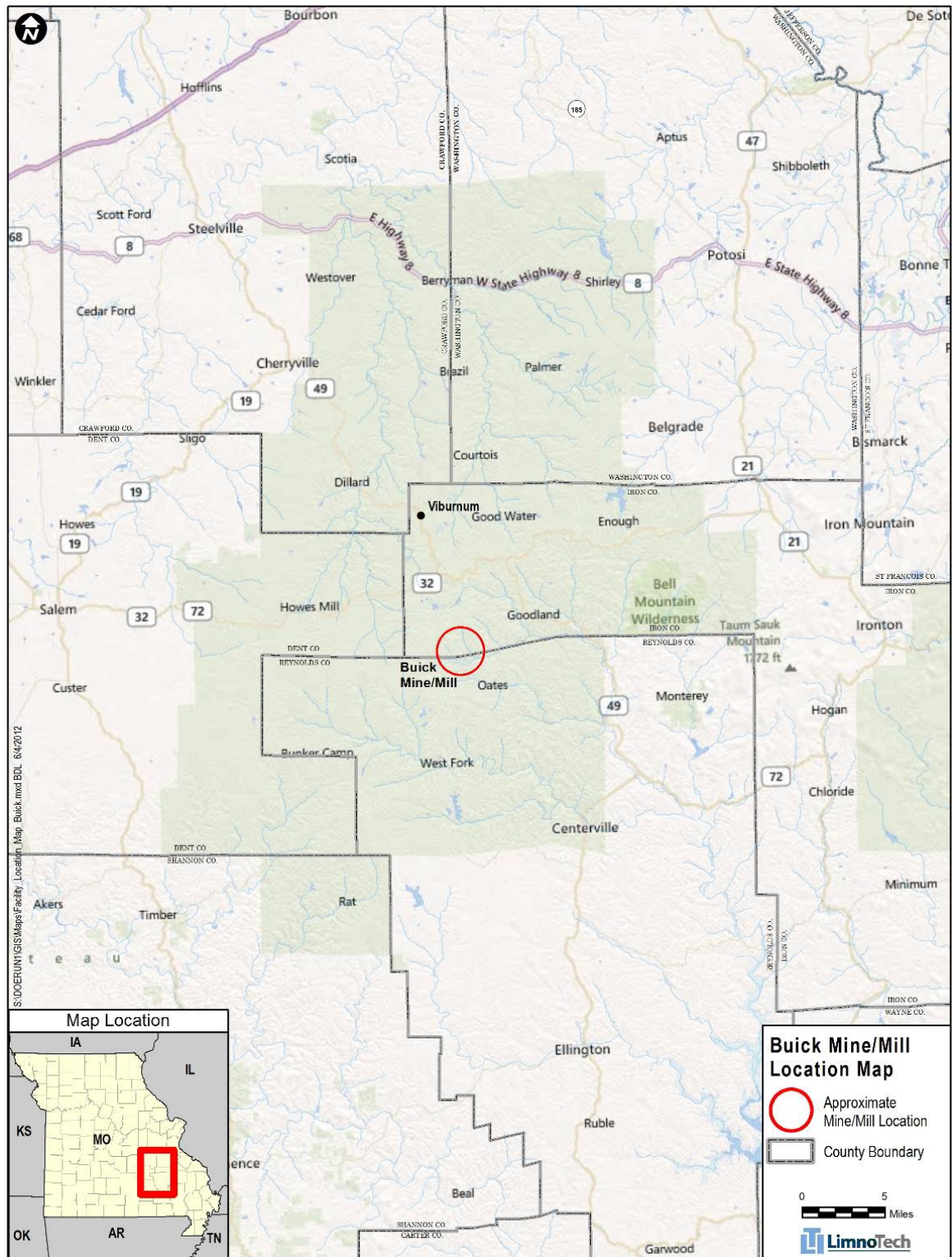


Figure 1-21. Location of the Buick Mine/Mill.

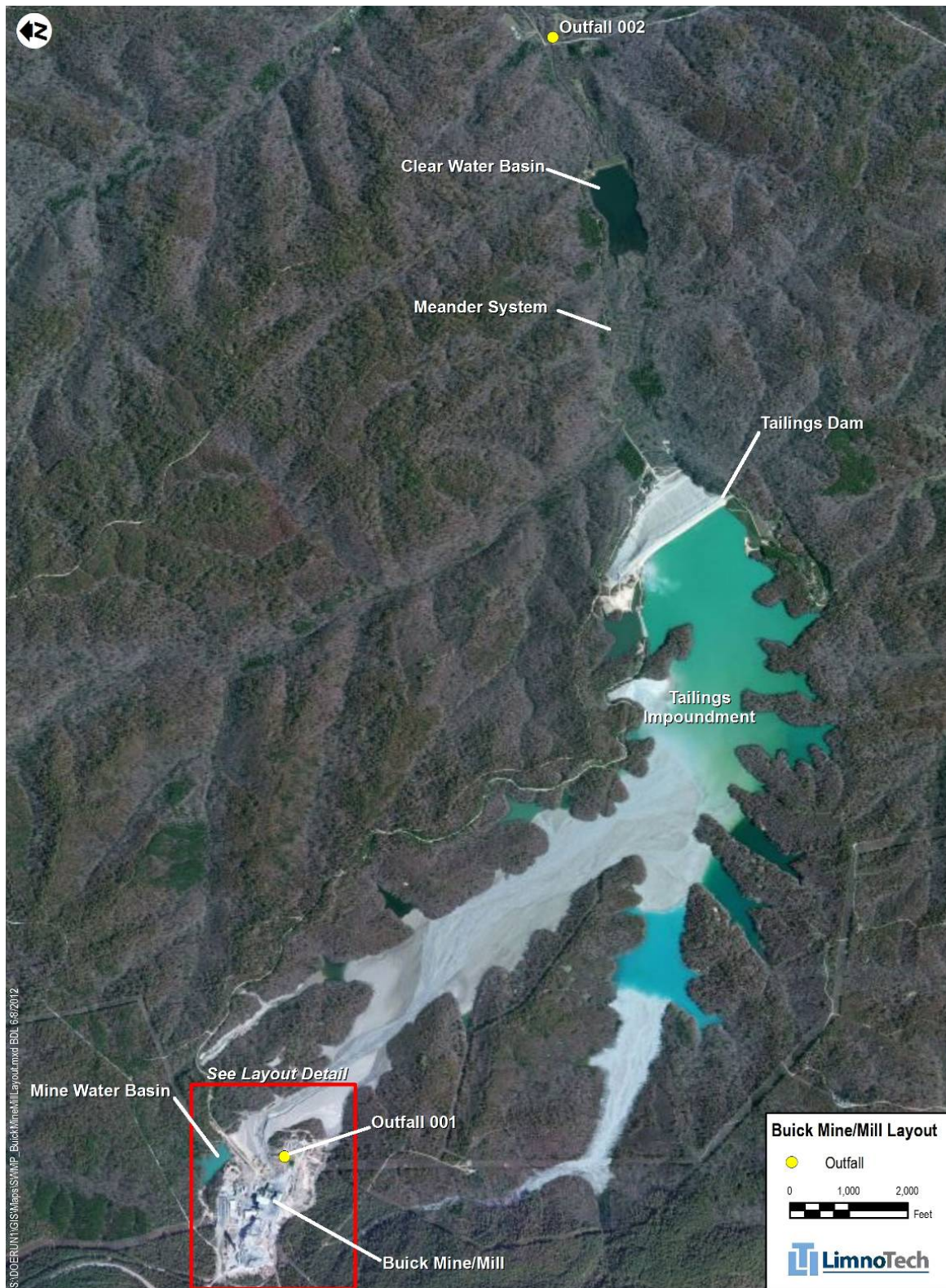


Figure 1-22. Buick Mine/Mill Layout



Buick Surface Water Management Team

Surface water management for the Buick Mine/Mill will be the responsibility of the individuals named in Table 1-1. All of the individuals named are employees of The Doe Run Company.

Table 1-3. West Fork Facility Surface Water Management Team.

Job Title	Name	Contact Info	Role/Responsibilities
Environmental Compliance Supervisor	Amy Sanders	P.O. Box 500 Viburnum, MO 65566 573- 689-4535	Environmental data collection, management, reporting, and compliance.
EHS Regulatory Manager	Mark Cummings	P.O. Box 500 Viburnum, MO 65566 573- 244-8152	Oversight of Environmental Permitting
Mill Manager	John Boyer	P.O. Box 500 Viburnum, MO 65566 573-689-4263	Oversight and management of Doe Run mill operations
Chief Engineer	Dan Buxton	P.O. Box 500 Viburnum, MO 65566 573-244-8142	Oversight of major water management measures evaluation and design
General Maintenance Manager	Gene Hites	P.O. Box 500 Viburnum, MO 65566 573-689-4151	Management of facility maintenance issues and personnel
Environmental Engineering Supervisor	Kevin James	P.O. Box 500 Viburnum, MO 65566 573-626-2096	Oversight of wastewater treatment.
Buick Mill Superintendent	Brian Mangogna	P.O. Box 500 Viburnum, MO 65566 573-626-2004	Buick SWMP Primary Oversight, Implementation
Buick General Maintenance Supervisor	Bill Courtney	P.O. Box 500 Viburnum, MO 65566 573-626-2004	Buick SWMP Secondary Oversight, Implementation, and record-keeping
Buick Surface Maintenance Supervisor	Dane Cheek	P.O. Box 500 Viburnum, MO 65566 573-626-2015	Buick SWMP Secondary Oversight, Implementation

Water Balance and Source Identification

This section summarizes the sources and quantities of water at the facility requiring management and treatment.

Mine Water

Mine water from the Buick Mine is pumped to the surface at the mine shaft and is routed to the mine water tank. Mine water flows from the mine water tank to the mine water basin, the mill, the crusher, and/or the truck washes. Average mine water flow rates are estimated to be 4.3-8.6 MGD (~3,000-6,000 gpm).

Precipitation and Stormwater Runoff

The average annual rainfall for the area is 38 inches. Figure 2-1 shows the drainage areas contributing stormwater runoff in the mine/mill area and the tailings impoundment. The total volume of direct precipitation and stormwater runoff requiring management and treatment was estimated to be 2.24 MGD on an average annual basis. Runoff during large storm events is substantially larger. The total volume of water resulting from a 10-yr, 24-hr rainfall event is 188 MG. This includes watershed runoff and direct precipitation on the tailings impoundment and mine water basins.

Pre-Treated Wastewater Transfer from Buick Resource Recycling Facility

In an effort to obtain cost-efficiencies by building fewer, larger treatment plants, pre-treated water from the Buick Resource Recycling Facility (BRRF) will be transferred via pumping and piping to Buick Mine/Mill for further treatment and discharge. A conceptual layout of the water transfer is presented in Figure 2-2. The current average estimate of the transfer of BRRF water to Buick Mine/Mill is 0.432 MGD (~300 gpm).

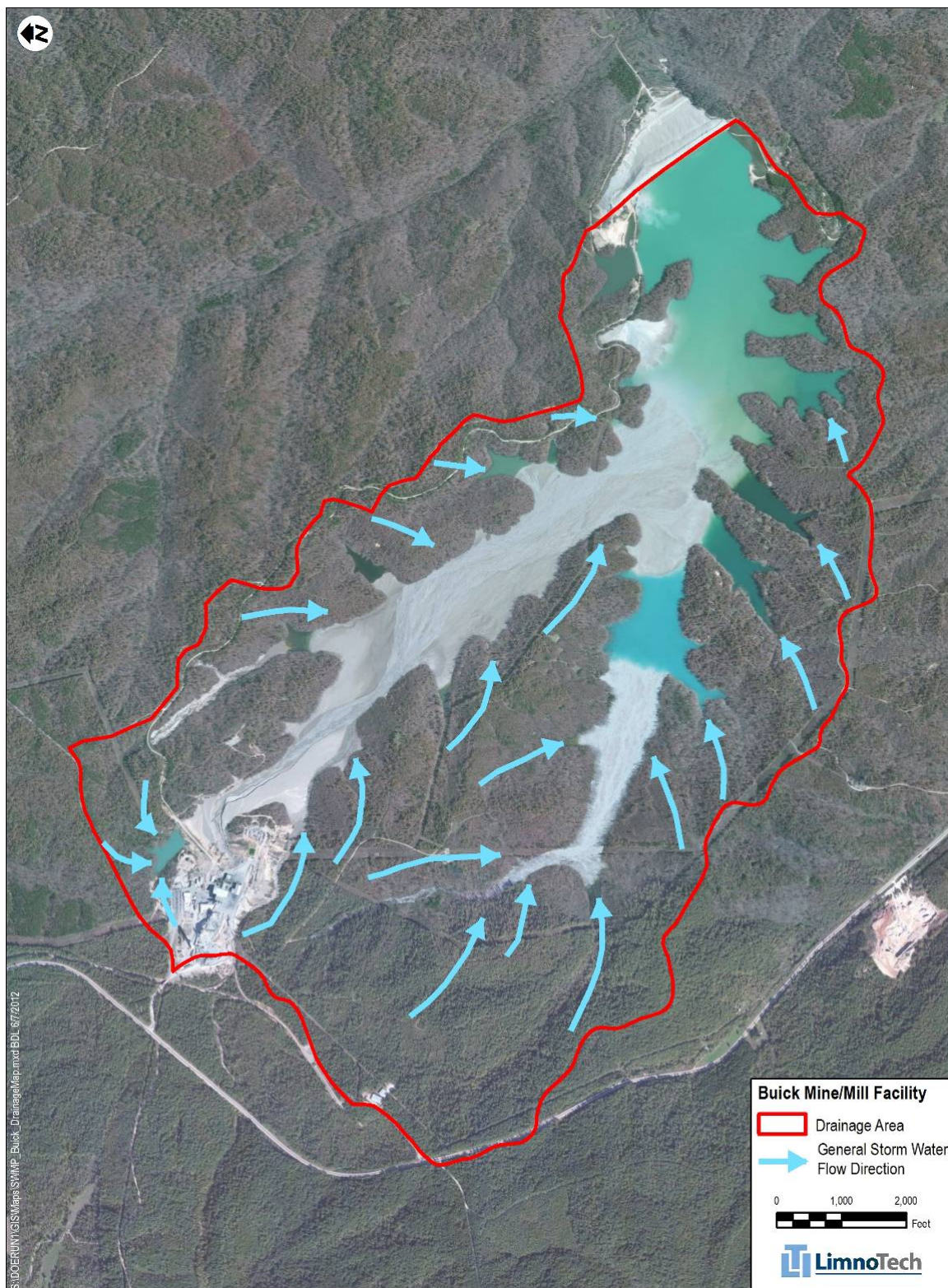


Figure 2-24. Stormwater Drainage Areas and Flow Paths at the Buick Mine/Mill.

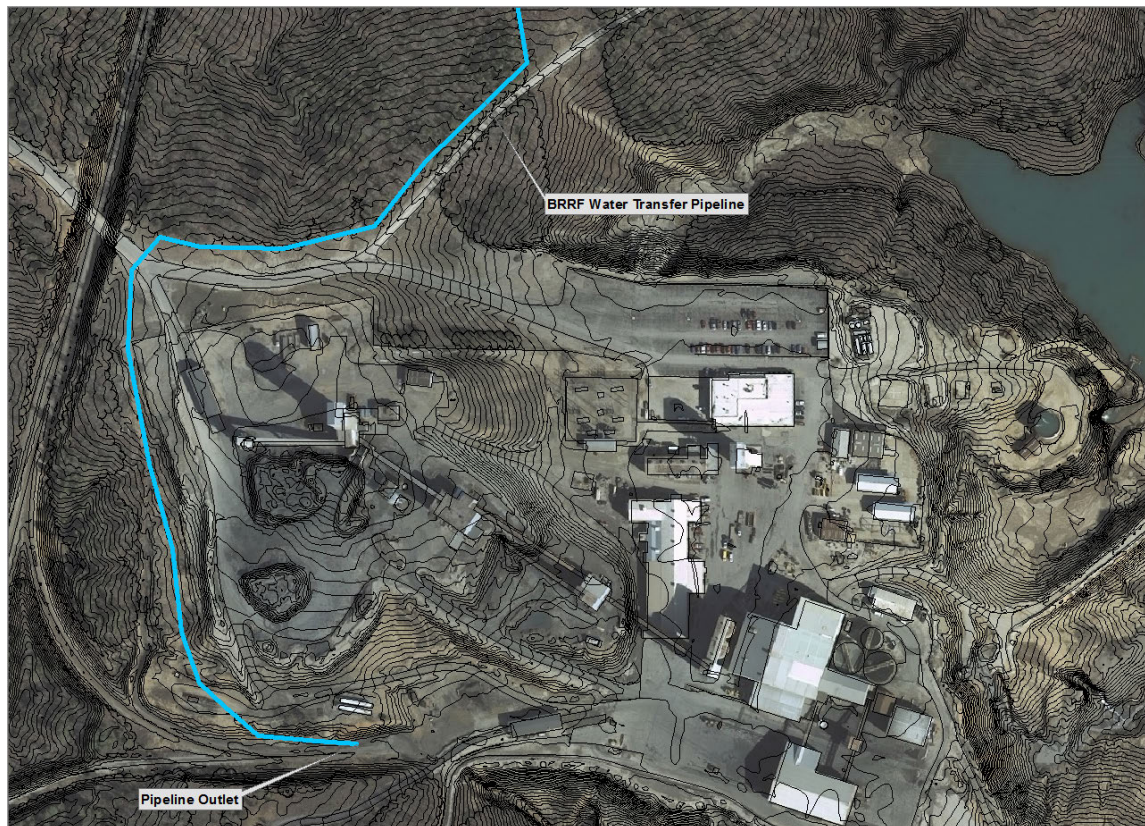


Figure 2-25. Layout of Current Pre-treated Wastewater Transfer from Buick Resource Recycling Facility to Buick Mine/Mill.

Facility Water Balance

A schematic of the water balance and proposed treatment system for the facility is presented in Figure 2-3.

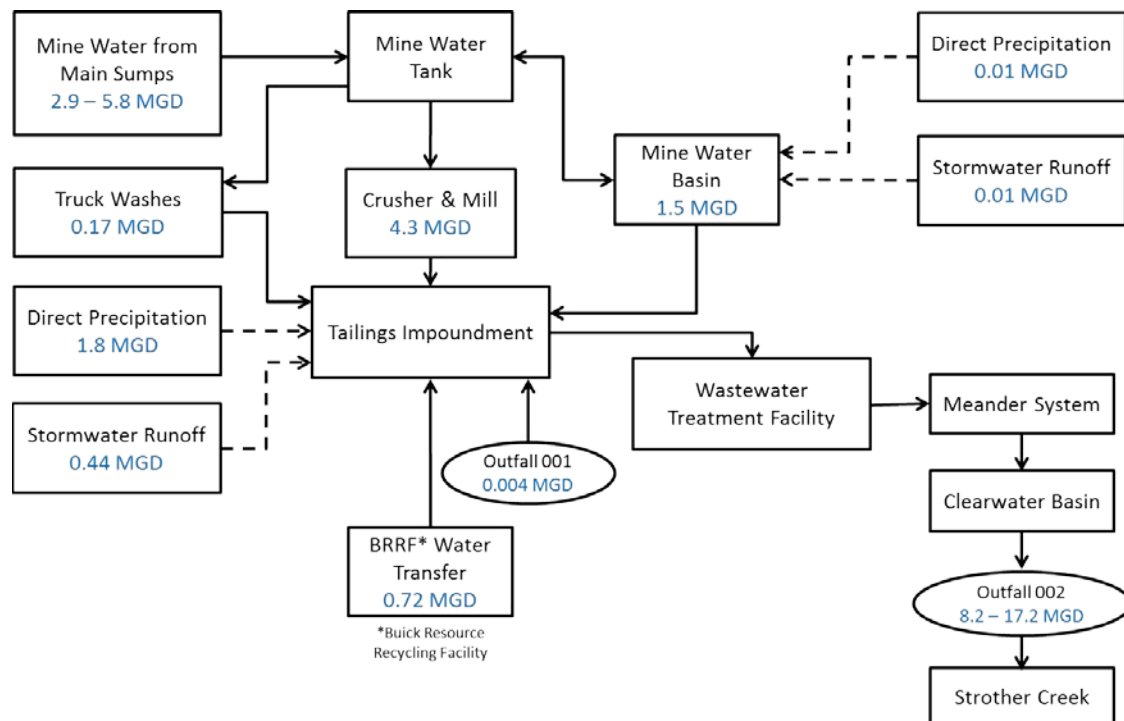


Figure 2-26. Water Balance and Conceptual Treatment Schematic.

Water Quality Monitoring

Water quality monitoring has been conducted at the Buick Mine/Mill as required by the MSOP as well as additional monitoring to support the SWMP. Water quality data for select parameters collected from January 2012 through April 2014 are displayed in the figures below. These data are being used to evaluate surface water management practices and treatment needs at the facility. Supplemental monitoring may be performed to evaluate various water management measures and treatment requirements. The sampling locations presented in the figures include:

- Outfall 002: Permit-required monitoring;
- BU-MW: Mine water pumped to the surface;
- BU-MWABTI: Monitoring of mine water entering tailings impoundment; and
- BU-TIDECANT: Monitoring of water leaving tailings impoundment.

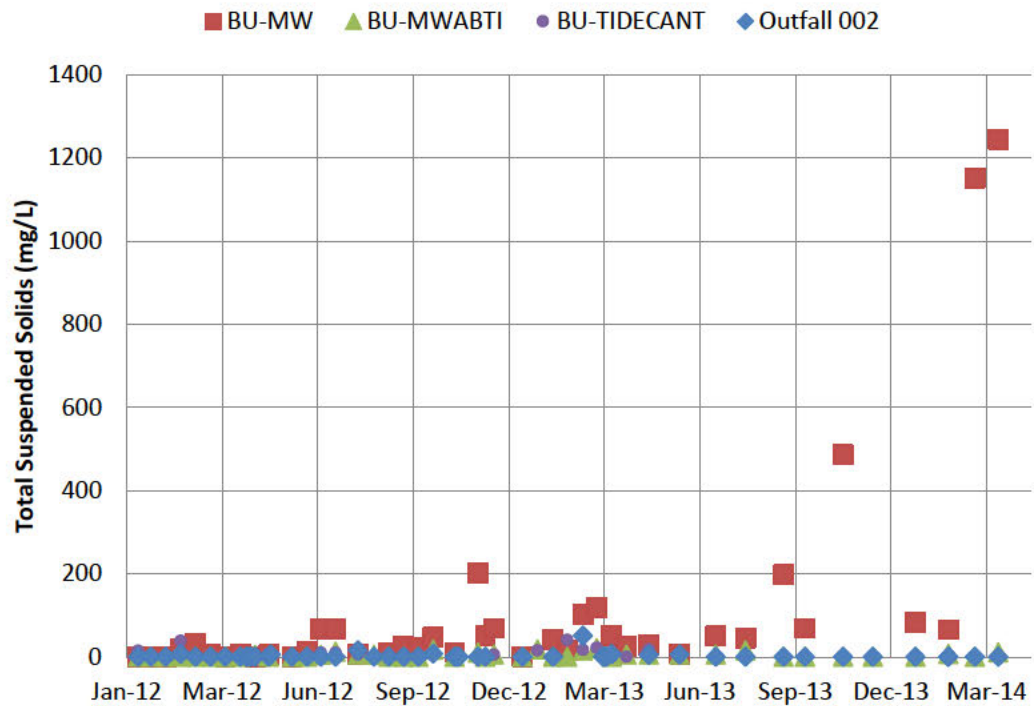


Figure 2-27. Monitoring of TSS at Surface Sampling Locations.

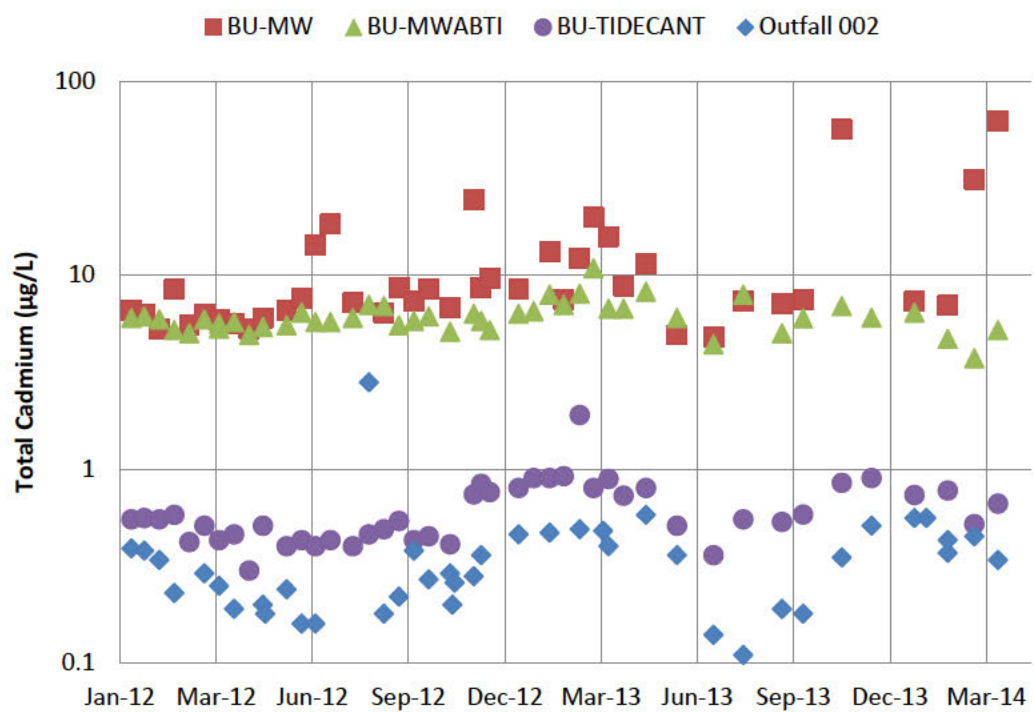


Figure 2-28. Monitoring of Cadmium at Surface Sampling Locations.

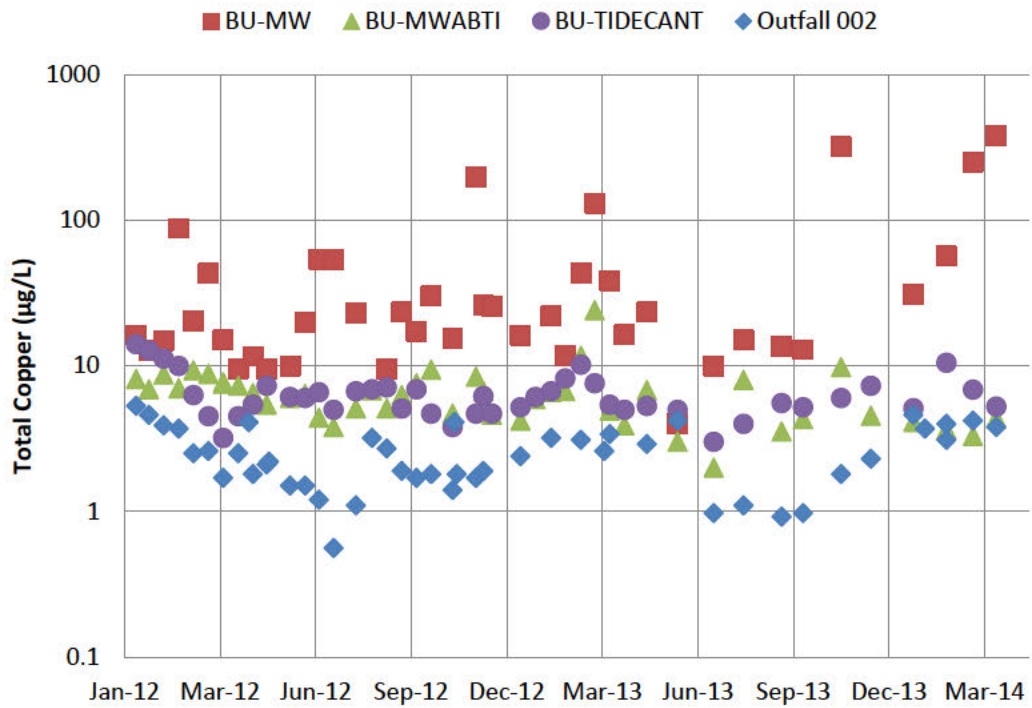


Figure 2-29. Monitoring of Copper at Surface Sampling Locations.

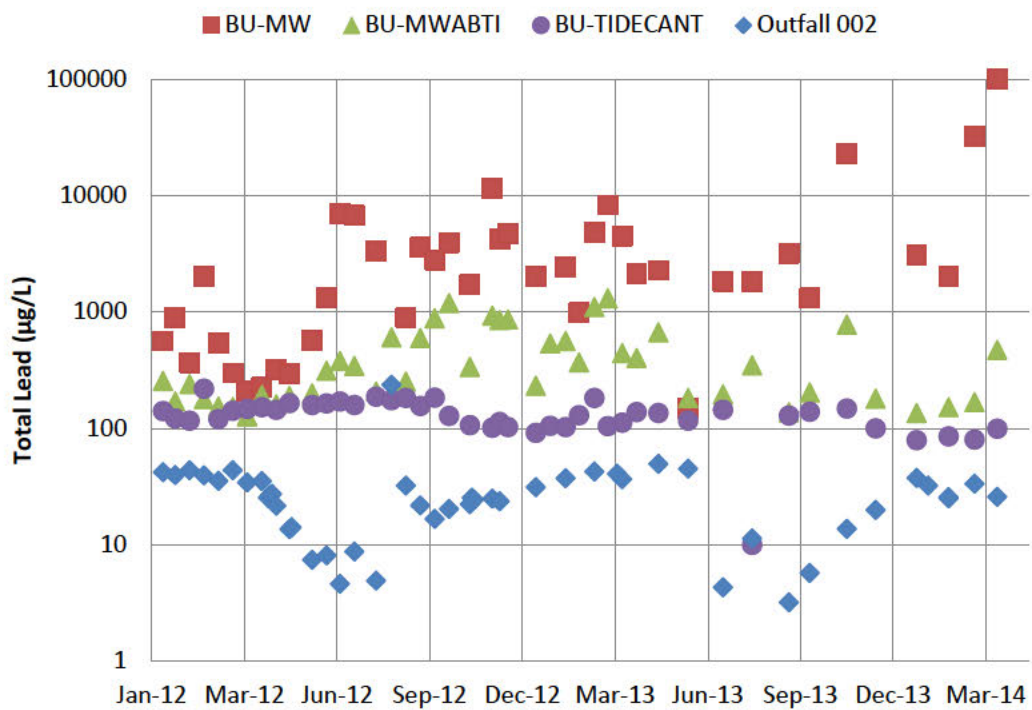


Figure 2-30. Monitoring of Lead at Surface Sampling Locations.

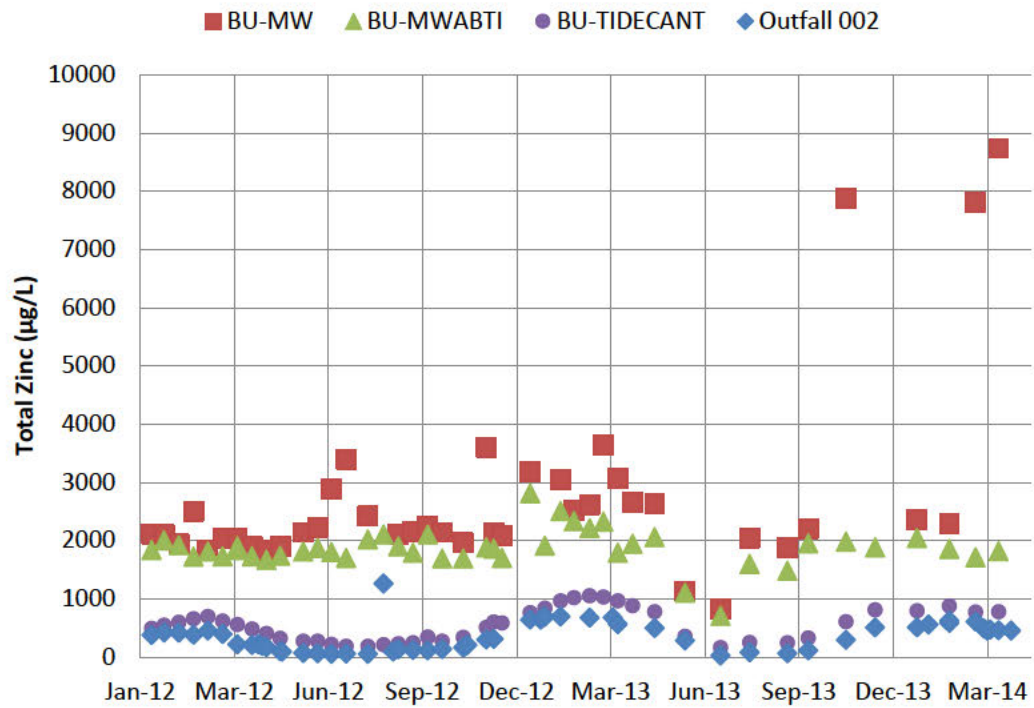


Figure 2-31. Monitoring of Zinc at Surface Sampling Locations.

Plan Implementation

Implementation activities to attain compliance with MSOP terms, conditions, and final effluent limitations are detailed in this section. A schedule for these activities is also included. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Completed Activities

Several activities have already been completed that support the effort to comply with MSOP terms, conditions and final effluent limitations. These include but are not limited to the following:

Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP);
Flow and water quality monitoring underground and on the surface;
Resolution of permit appeal issues addressing various concerns, including establishment of final effluent limits based on site-specific hardness and dissolved metal translator information;
Development of the Underground Water Management Plan (UWMP) and the SWMP and an annual revision;
SWPPP, UWMP and SWMP training;
Implementation of underground BMPs underground;
Completion of multiple treatability studies to evaluate chemical/physical treatment and biotreatment alternatives;
Preparation and submittal of antidegradation reviews for water transfers between facilities;
Contracting, design, permitting and construction of a treatment plant at Brushy Creek Mine/Mill, gaining valuable experience with full-scale construction and operation of the selected CoMag treatment process; and
Contracting for design and construction of a treatment plant at Buick Mine/Mill Facility.

Planned Activities

The following activities are planned in order to optimize the overall treatment system and meet final MSOP limits:

7. Storm water storage, diversion, and overflow evaluation
 - Building treatment plants to handle peak runoff flows during extreme events is not feasible. An evaluation of peak runoff volumes and rates and the feasibility of storage and diversion options is needed to appropriately size the treatment plant and limit overflows to acceptable precipitation event conditions.
 - Storm water management alternatives, such as storage and storm water runoff diversions, will be assessed to optimize treatment of mine water and storm water runoff and limit the occurrence of overflows.
8. Pilot testing

- Based on the design flows determined under the evaluation of storm water and mine water management, pilot testing will be completed to understand the most cost effective and reliable water treatment process.
- Pilot testing will require initial set-up, sampling, monitoring, review, process adjustments, and final verification.

9. Design

- Following the determination of design flow and treatment process, Doe Run's contractor will begin design and construction of the water treatment system.
- Plant siting will require land surveying, geotechnical investigations, drainage evaluations, preliminary design of pumping systems, and an overall feasibility evaluation in order to find the optimal location for the plant.
- Design of the plant includes consideration of the building, utilities, equalization influent pumping, reaction tanks, clarifier, effluent tank, sludge management, chemical feed, HVAC, and fire protection.

10. Site Work

- Erosion and sediment controls will be installed prior to land disturbing activities.
- Construction of access road to construction site.
- Site work to prepare construction site.
- Construct delivery of utilities to site.
- Construct piping from lift station to treatment system.
- Construct piping from treatment system to outfall.
- Storm water drainage.
- Final grading.

11. Construction

- Laydown area for onsite storage of materials during construction
- Temporary utilities
- Site security
- Construct foundation, building, tanks, install piping, equipment and controls.

12. Permitting

- Although a construction permit is not required for the construction of the water treatment facility, a land disturbance permit may be required.
- An assessment will be performed to determine if a 404 permit is required for any construction activities that may occur in waters of the United States.

13. Plant startup and shakedown

- Water supply for pipe pressure tests and hydrostatic leak tests

- Pressure testing of piping
- Flushing of piping
- Influent pump rotation check
- Hydrostatic leak tests of tanks
- Electrical continuity tests
- Rotation check of equipment
- Clarifier torque test
- Unit process tests
- Instrument and valve calibration
- Check of control system I/O and communications
- Test of control system interlocks, alarms, and operations
- Test of control system communications
- Safety check
- A source for treatment chemicals will be identified and contracted.
- Metering pumps will undergo calibration and control loops will be tuned and adjusted.
- Process chemistry will be adjusted and an iterative cycle of sampling, monitoring, analysis, and adjustment will be needed to optimize the process.

14. Whole Effluent Toxicity (WET) test confirmation period

- Confirmation and monitoring will take place to understand the long term adjustments and operation of the system. Compliance with chronic whole effluent toxicity tests can require fine-tuning chemical additions and adjustments to balance metals removal and toxicity.

Anticipated Bypasses from Storage Structures

Doe Run operates and maintains tailings impoundments and/or mine water basins at its mines. All of these structures have a spillway pipe and/or an emergency spillway. In each Surface Water Management Plan, Doe Run proposes to construct wastewater treatment facilities to treat and discharge water stored in tailings impoundments/mine water basins. However, during certain precipitation conditions, either large single storm events or a series of smaller yet substantial storms¹, these impoundments or basins may bypass² stormwater influxes to prevent catastrophic damage to these storage structures.

For example, the Old Viburnum tailings impoundment has a huge, 2,600 acre watershed. Thus, even modest stormwater events send large amounts of water into the Old Viburnum tailings impoundment. It is Doe Run's goal to capture, store and treat up to the one in five year 24-hour event in the Old Viburnum tailings impoundment. Compare this to West Fork tailings impoundment which, for example, has a much smaller watershed and a greater capability to capture and store runoff. At West Fork, it is Doe Run's goal to be able to store up to a 1 in 10 year 24-hour event without bypassing. In conclusion, depending on the watershed size, basin size, and ability to divert stormwater, these basins will bypass during different precipitation conditions.

In regards to the Buick mine tailings impoundment, Doe Run plans to manage the tailings impoundment to be able to hold a 1 in 10 year 24-hour event. According to Doe Run's calculations, 2.0 feet of freeboard in the available storage areas of the tailing impoundment will store a 1 in 10 year 24-hour event. Whenever the Buick mine tailings impoundment freeboard is less than 2.0 feet, the Buick mine wastewater treatment facility will be operated at maximum capacity until such time as the freeboard is returned to 2.0 feet. At this time, it is estimated that the Buick mine wastewater treatment facility will be designed to treat between 8,000 and 12,000 gpm.

At Buick mine, discharges from Outfall 002 would be authorized during or following precipitation conditions so long as Doe Run complies with the following requirements:

1. The wastewater treatment plant was maintained and operated at maximum capacity at times the freeboard was less than 2.0 feet leading up to the discharge through Outfall 002.
2. The following information would be recorded and reported to DNR in the DMR for months when Outfall 002 discharged:
 - a. Daily treatment and discharge volumes through Outfall 002;
 - b. Daily water surface elevation in the tailings impoundment;
 - c. Daily precipitation;
 - d. Each discharge at Outfall 002 will be sampled and analyzed for pH and settleable solids.

¹ A chronic weather event is a single stormwater event or a series of wet weather conditions that occur over a ten day period as determined by the University of Missouri's Missouri Climate Center. The Climate Center can make a determination when a chronic weather event is occurring for any given county in Missouri based upon an evaluation of the 1 in 10 year return rainfall frequency over a 10-day, 180-day and 365-day operating period.

² The Department may approve an anticipated bypass, after considering its adverse effects, if the Department receives at least 10 days' notice before the bypass and the Department agrees the bypass was unavoidable to prevent severe property damage, and there are no feasible alternatives to the bypass. 10 CSR 20-7.015 (9)(G)2-4.

Schedule

A schedule of the planned implementation activities has been developed based on the experience and timing of similar activities that have taken place at the Brushy Creek facility. The schedule is presented in Figure 3-1. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Figure 3-32. Implementation Schedule.

[illegible]

Exhibit T



**SURFACE WATER
MANAGEMENT PLAN
for the
DOE RUN COMPANY - FLETCHER FACILITY
(MSOP No. MO-0001856)**

**The Doe Run Resources Corporation
d/b/a The Doe Run Company**

**Revised
May 2014**

Introduction

This document presents a revised Surface Water Management Plan (SWMP) for The Doe Run Company Fletcher Mine/Mill. The original SWMP was prepared in July 2012 and a previous revision was completed in July 2013. This revision includes the most recent data for the facility and current plans and schedule for implementation activities that will result in compliance with final Missouri State Operating Permit (MSOP MO-0001856) terms, conditions, and limitations. Previous versions of the SWMP included substantial background information on the facility that has not been included in this revision in an effort to streamline the content of this document.

Facility Description

The Fletcher Mine/Mill is located in Reynolds County, Missouri, approximately 17 miles south of Viburnum (Figure 1-1).

Primary surface operations at the Fletcher facility involve the milling of lead, zinc and copper ore from the Fletcher and Viburnum #29 and #35 Mines. An aerial layout map of the Fletcher facility is depicted in Figure 1-2 and a detailed view is shown in Figure 1-3. These figures show several features relevant to this SWMP, including the following:

- Office/warehouse building – This building has offices, warehouse storage, employee lockers and change rooms and hoist operations.
- Mill – The mill is where ore milling occurs. The primary product of the milling process is ore concentrate or “con”, which is trucked off-site. The main by-product of the milling process is tailings, which are pumped to the tailings impoundment on site.
- Mill reservoir – The mill reservoir receives and stores water pumped from the tailings impoundment for use in the Fletcher mill. Water is also sent from the mill reservoir to the truck wash by a gravity drain.
- Mine water basin – The mine water basin, also known as the clear water basin, receives mine water pumped to the surface from the mine and stormwater runoff from the drainage area surrounding the basin. In addition, excess water from the tailings impoundment caused by stormwater runoff from the drainage area surrounding the impoundment can be pumped to the mine water basin to relieve water levels in the tailings impoundment that may occur as a result of large precipitation events. Water collected in the mine water basin undergoes treatment via settling.
- Holding reservoir – The holding reservoir receives the effluent from the truck wash, as well as stormwater from developed areas around the mill and truck wash. Water flows from the holding reservoir to the tailings impoundment.
- Tailings impoundment – The tailings impoundment receives process wastewater (tailings) from the milling of lead, copper, and zinc ore, as well as stormwater runoff from the surrounding drainage area and water from the holding reservoir. Water collected in the impoundment undergoes treatment via settling.

- Outfall 001 – Outfall 001 (sample ID = Fletch001) is the permitted point of discharge for mine water from the Fletcher facility. Mine water and stormwater, including at times excess water from the tailings impoundment, are discharged through outfall 001 after undergoing treatment via settling.
- Outfall 002 – Outfall 002 (sample ID = Fletch002) is the permitted point of discharge for the tailings impoundment emergency spillway. This outfall is designed and managed as a non-discharging outfall and are only expected to discharge in extreme precipitation events.
- Outfall 003 – Outfall 003 (sample ID = Fletch003) is the permitted point of discharge for the tailings impoundment seep basin, which receives flow from the toe drain of the tailings impoundment dam. This water is pumped back to the impoundment. This outfall is designed and managed as a non-discharging outfall and are only expected to discharge in extreme precipitation events.
- Truck wash – The truck wash cleans vehicles leaving the facility.

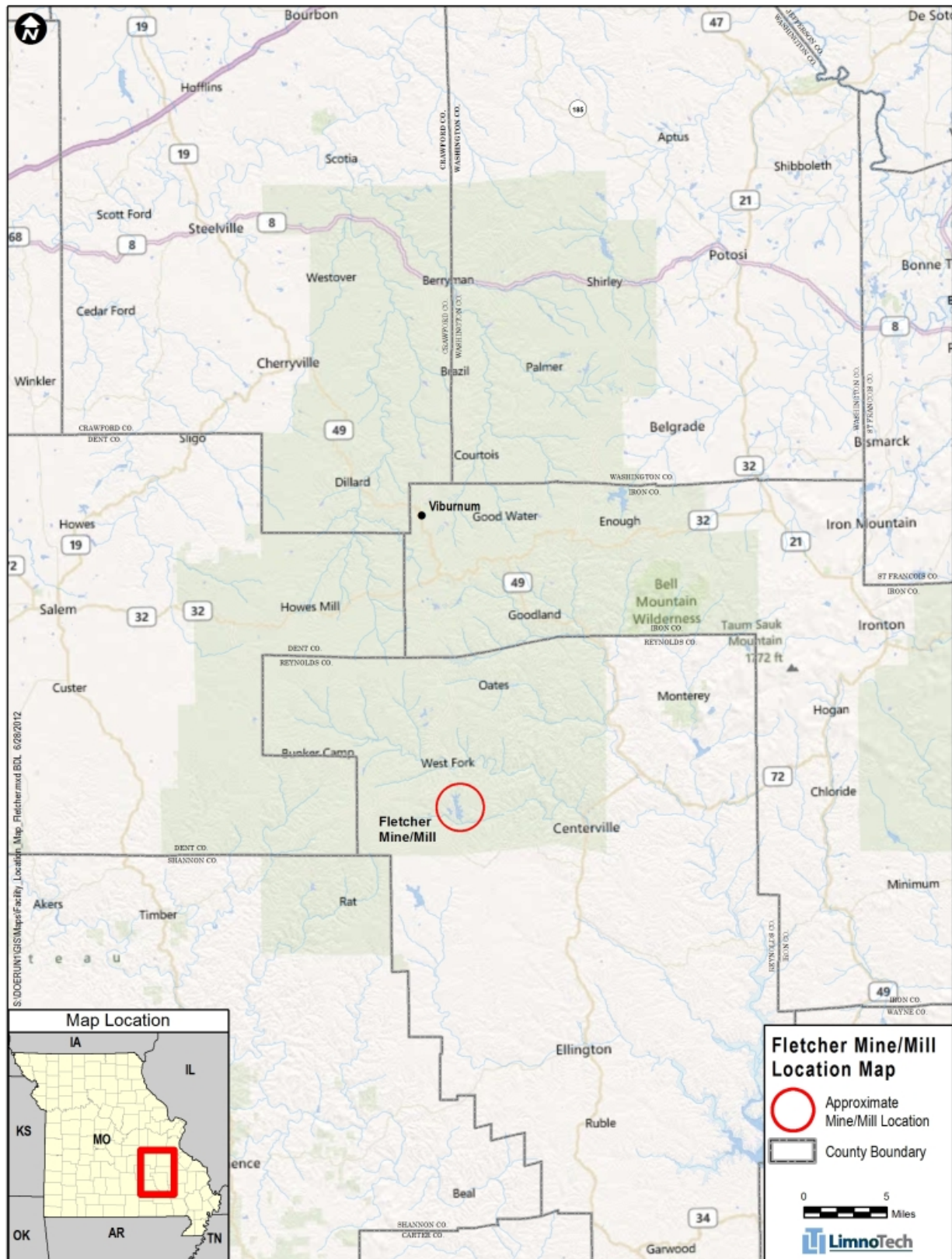


Figure 1-33. Location of the Fletcher Mine/Mill.



Figure 1-34. Fletcher Mine/Mill Layout



Figure 1-35. Fletcher Mine/Mill Layout Detail.

Fletcher Mine/Mill Surface Water Management Team

Surface water management for the Fletcher Mine/Mill will be the responsibility of the individuals named in Table 1-1. All of the individuals named are employees of The Doe Run Company.

Table 1-4. West Fork Facility Surface Water Management Team.

Job Title	Name	Contact Info	Role/Responsibilities
Environmental Compliance Supervisor	Amy Sanders	P.O. Box 500 Viburnum, MO 65566 573- 689-4535	Environmental data collection, management, reporting and compliance.
EHS Regulatory Manager	Mark Cummings	P.O. Box 500 Viburnum, MO 65566 573- 244-8152	Oversight of Environmental Permitting
Mill Manager	John Boyer	P.O. Box 500 Viburnum, MO 65566 573-689-4263	Oversight and management of Doe Run mill operations
Chief Engineer	Dan Buxton	P.O. Box 500 Viburnum, MO 65566 573-244-8142	Oversight of major water management measures evaluation and design
General Maintenance Manager	Gene Hites	P.O. Box 500 Viburnum, MO 65566 573-689-4151	Management of facility maintenance issues and personnel
Environmental Engineering Supervisor	Kevin James	P.O. Box 500 Viburnum, MO 65566 573-626-2096	Oversight of wastewater treatment.
Fletcher/West Fork Mill Superintendent	Dwain Beck	P.O. Box 500 Viburnum, MO 65566 573-689-4120	Fletcher SWMP Primary Oversight, Implementation
Fletcher/West Fork General Maintenance Supervisor	Randy Blount	P.O. Box 500 Viburnum, MO 65566 573-689-4122	Fletcher SWMP Secondary Oversight, Implementation, and maintenance record-keeping
Fletcher Surface Maintenance Supervisor	Terry Vest	P.O. Box 500 Viburnum, MO 65566 573-689-4143	Fletcher SWMP Secondary Oversight, Implementation

Water Balance and Source Identification

This section summarizes the sources and quantities of water at the facility requiring management and treatment.

Mine Water

Mine water from the Fletcher Mine is pumped to the surface from three underground mine water sumps: north sump, south sump and #8 sump. The north and south sumps are pumped up the production shaft and #8 is pumped to the surface behind the electrical shop. At the surface, the flows from the three sumps are piped together and routed to the mine water basin. Mine water can also be diverted directly to the mill or to the mill reservoir. Average mine water flow rates are estimated to be 6.91 MGD (~4,800 gpm).

Following treatment in the mine water basin, mine water is discharged to Bee Fork Creek at outfall 001.

Precipitation and Stormwater Runoff

The average annual rainfall for the area is 38 inches. Figure 2-1 shows the drainage areas contributing stormwater runoff in the mine/mill area, the tailings impoundment and mine water basin. The total volume of direct precipitation and stormwater runoff requiring management and treatment was estimated to be 0.2 MGD on an average annual basis in the mine water basin drainage area, and 0.38 MGD in the tailings impoundment drainage areas. Runoff during large storm events is substantially larger. The total volume of water resulting from a 10-yr, 24-hr rainfall event is 30 MG in the mine water basin drainage area and 82 MG in the tailings impoundment drainage area. This includes watershed runoff and direct precipitation on the tailings impoundment and mine water basins.

Mine Water Transfer to West Fork

In an effort to obtain cost-efficiencies by building fewer, larger treatment plants, mine water pumped to the surface at the Fletcher Mine/Mill will be transferred via aboveground pumping and piping to the West Fork facility for treatment. A conceptual layout of the water transfer is presented in Figure 2-2. The current estimate of the transfer of mine water from Fletcher to West Fork is 5.8 MGD (~4,030 gpm).

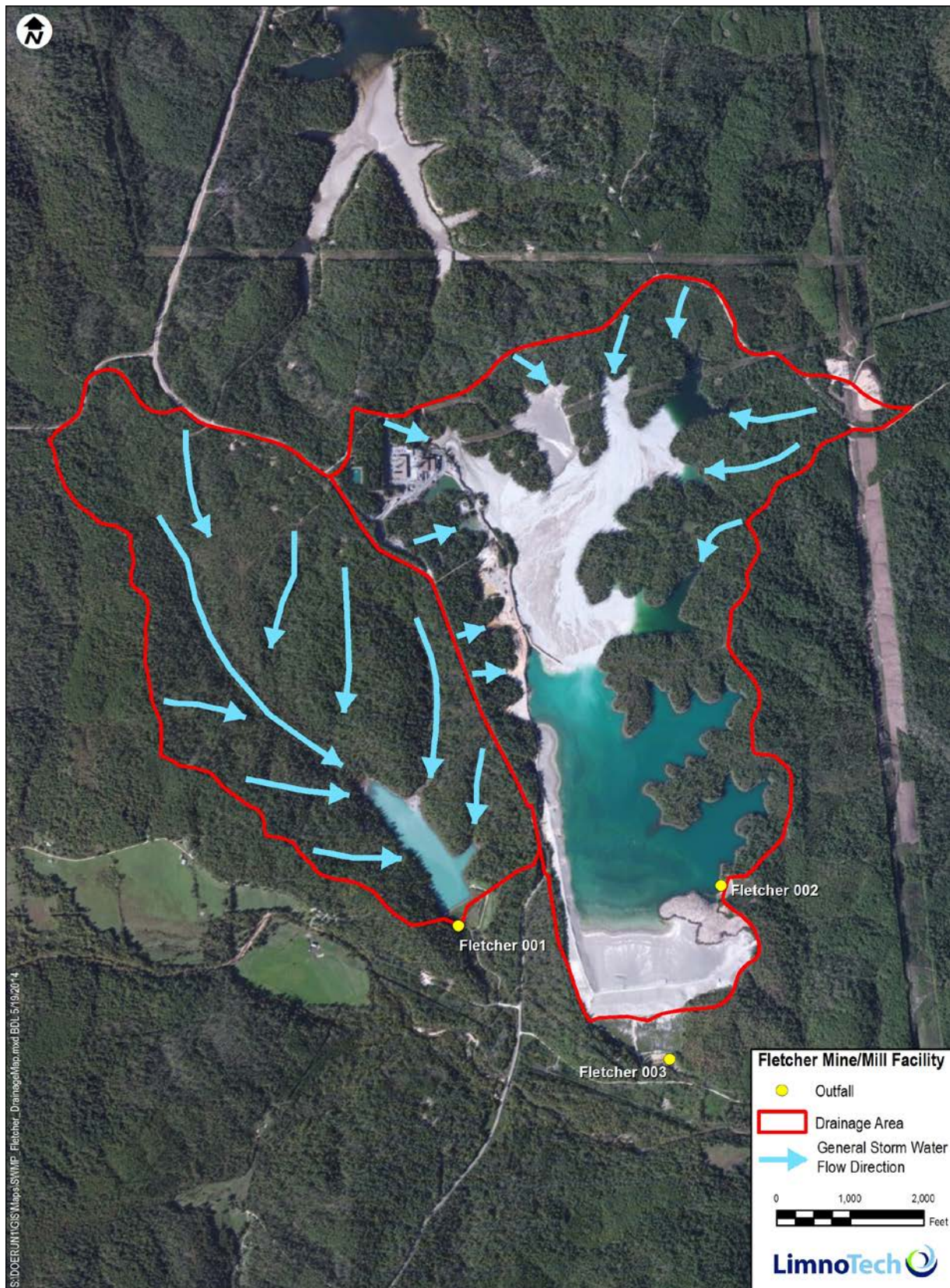


Figure 2-36. Stormwater Drainage Areas and Flow Paths at the Fletcher Mine/Mill.

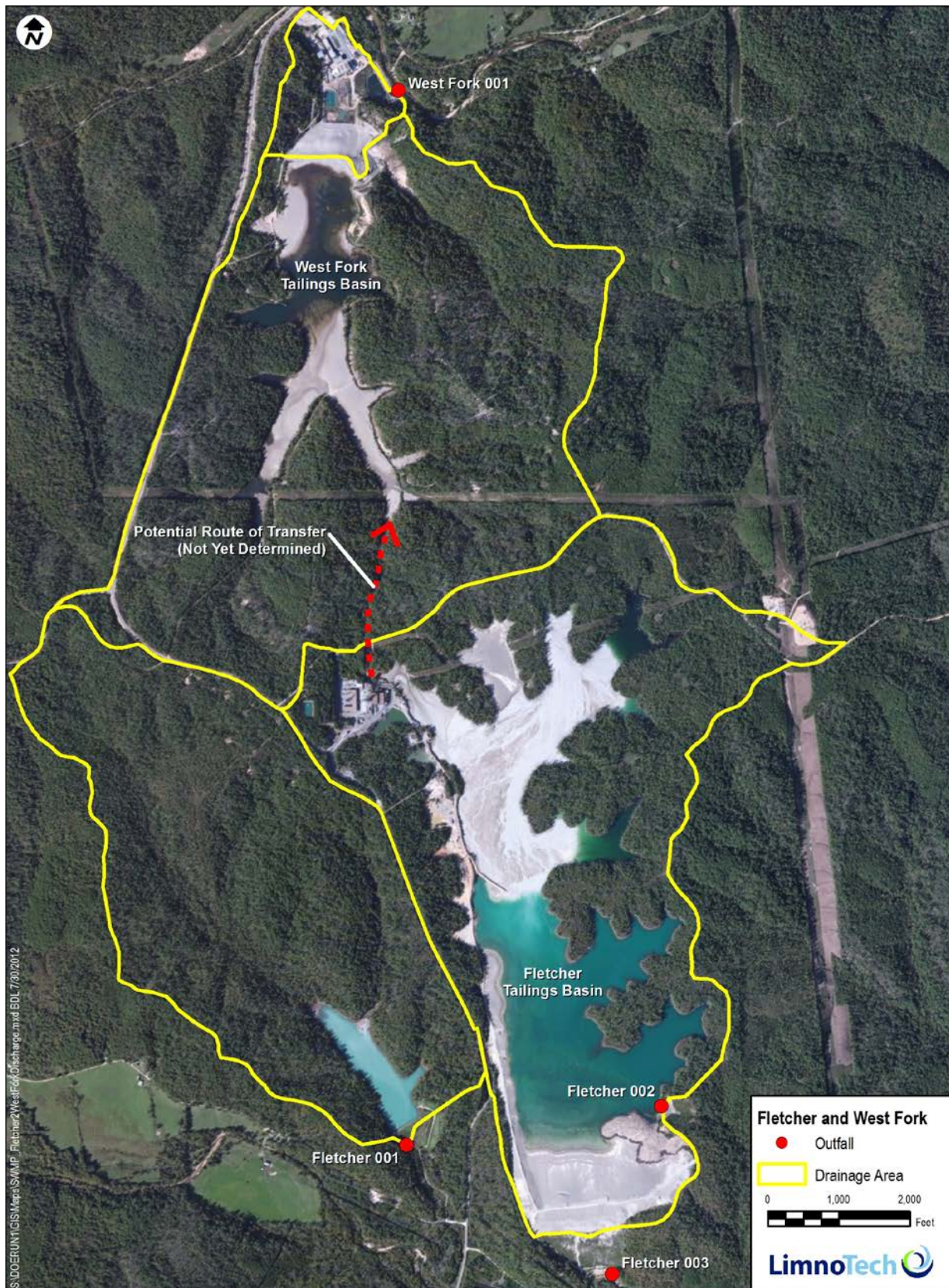


Figure 2-37. Conceptual Layout of Proposed Mine Water Transfer from Fletcher to West Fork.

Facility Water Balance

A schematic of the water balance and proposed treatment system for the facility is presented in Figure 2-3.

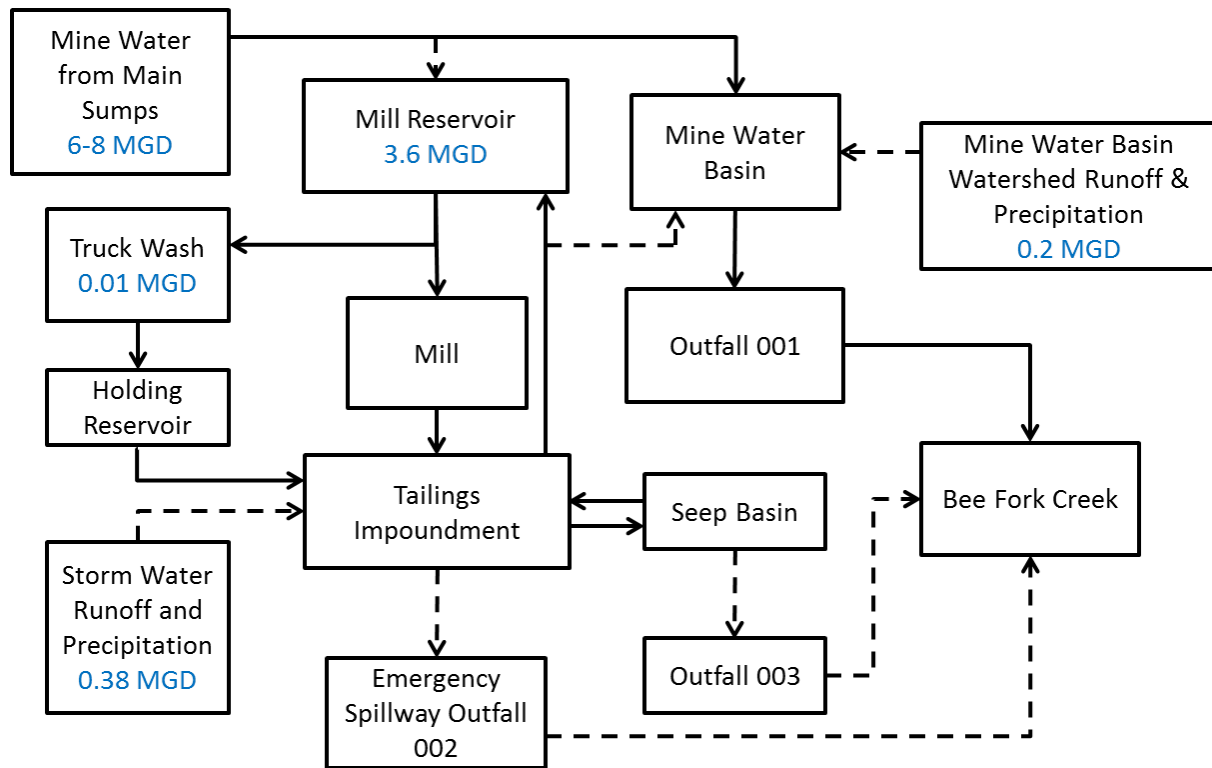


Figure 2-38. Water Balance and Conceptual Treatment Schematic.

Water Quality Monitoring

Water quality monitoring has been conducted at the Fletcher Mine/Mill as required by the MSOP as well as additional monitoring to support the SWMP. Water quality data for select parameters collected from January 2012 through April 2014 are displayed in the figures below. These data are being used to evaluate surface water management practices and treatment needs at the facility. Supplemental monitoring may be performed to evaluate various water management measures and treatment requirements. The sampling locations presented in the figures include:

- Outfall 001: Permit-required monitoring;
- FL-MWTAP: Monitoring of incoming mine water; and
- FL-MILLRESINF: Monitoring of water transferred from tailings impoundment for mill process water.

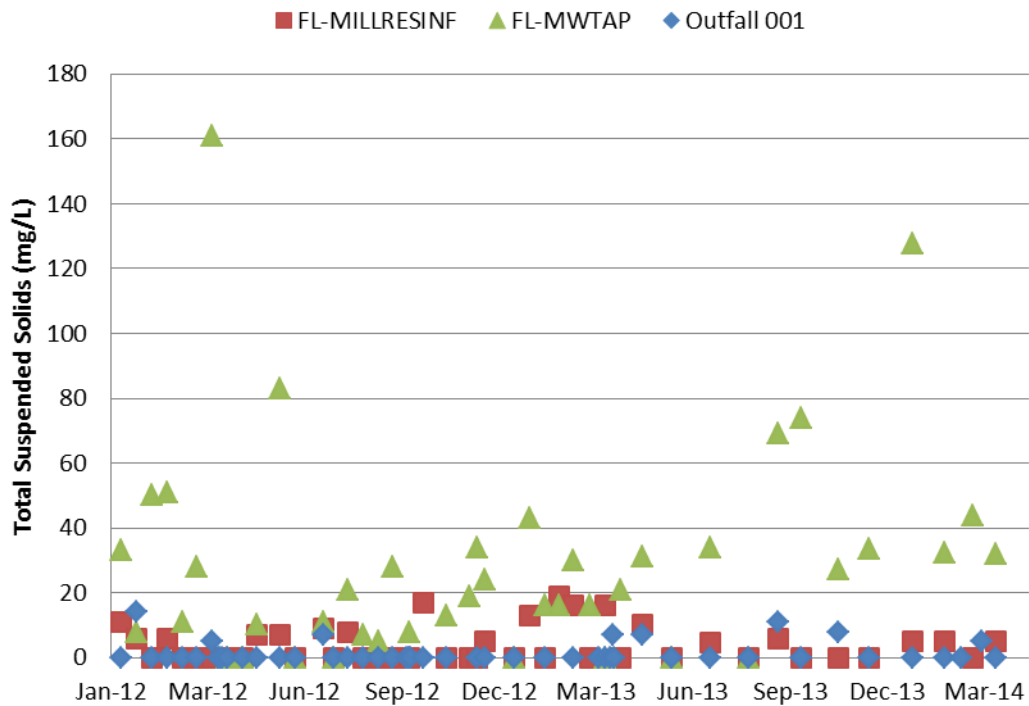


Figure 2-39. Monitoring of TSS at Surface Sampling Locations.

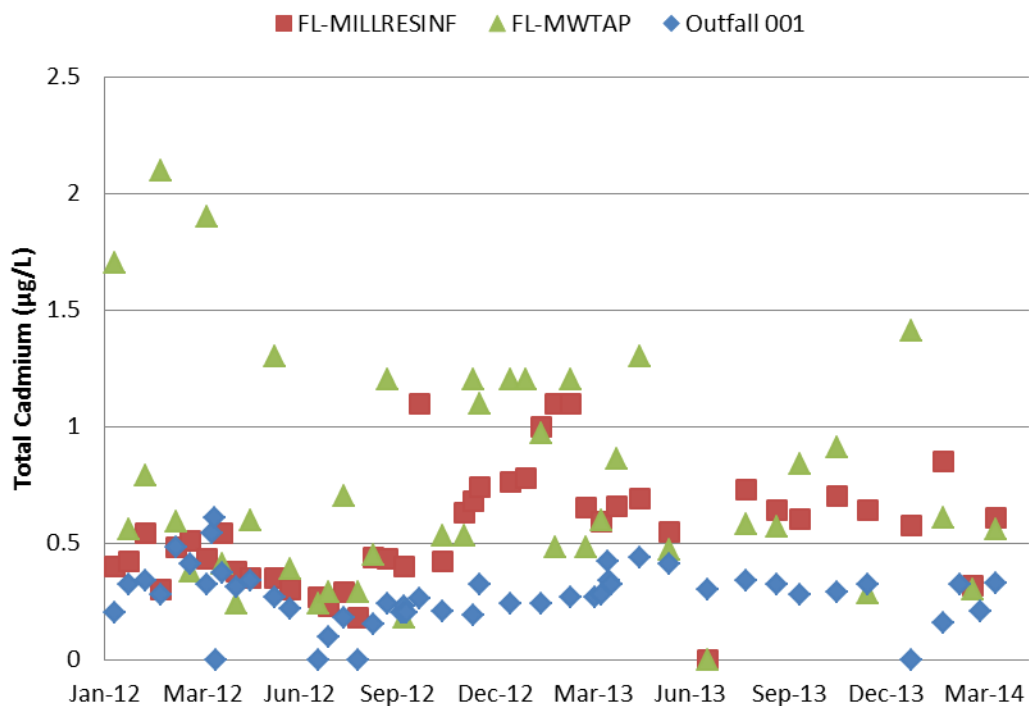


Figure 2-40. Monitoring of Cadmium at Surface Sampling Locations.

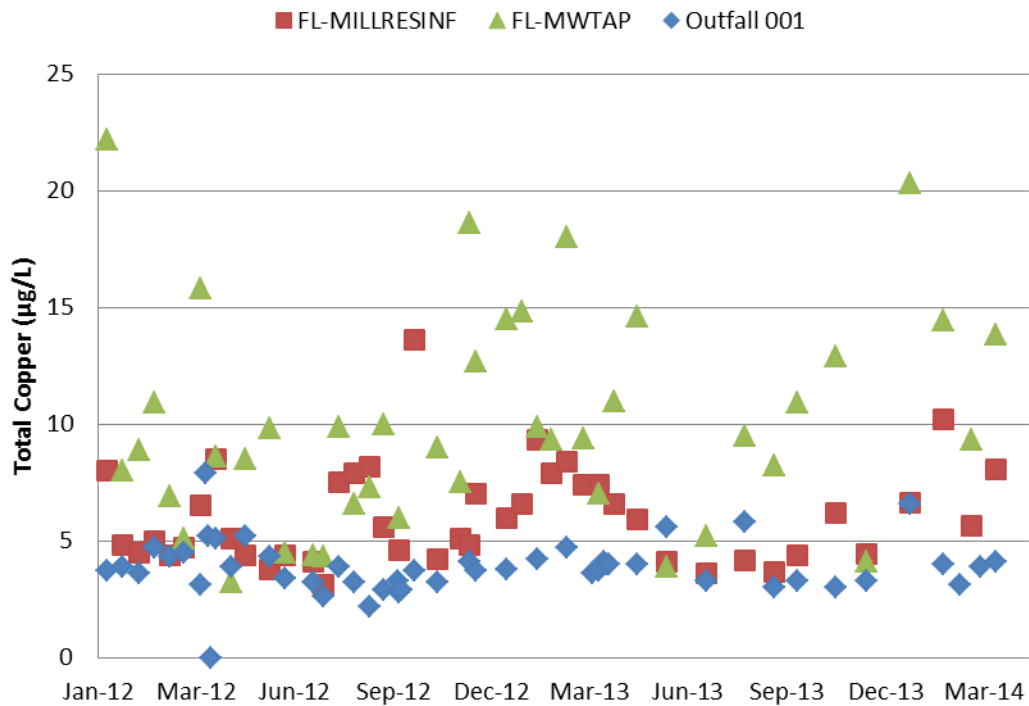


Figure 2-41. Monitoring of Copper at Surface Sampling Locations.

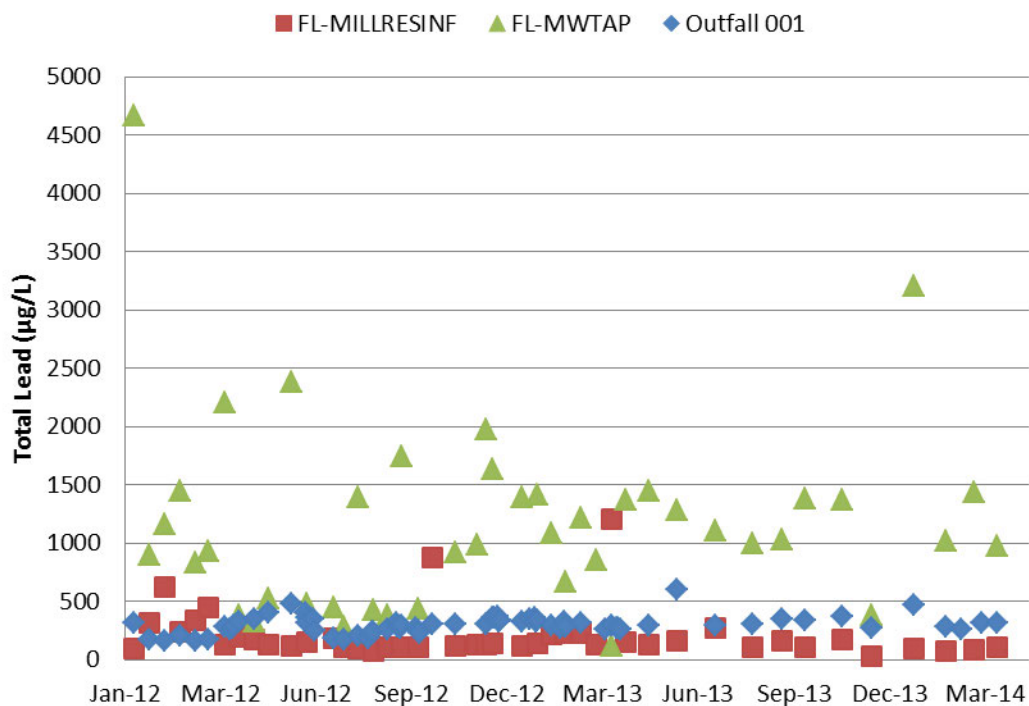


Figure 2-42. Monitoring of Lead at Surface Sampling Locations.

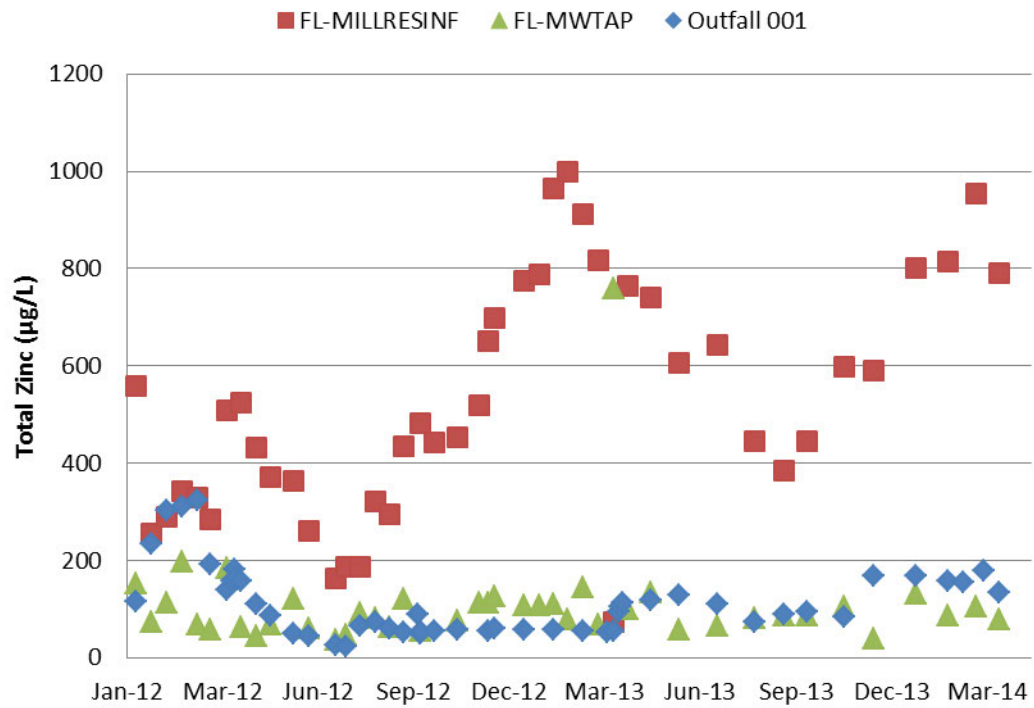


Figure 2-43. Monitoring of Zinc at Surface Sampling Locations.

Plan Implementation

Implementation activities to attain compliance with MSOP terms, conditions, and final effluent limitations are detailed in this section. A schedule for these activities is also included. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Completed Activities

Several activities have already been completed that support the effort to comply with MSOP terms, conditions and final effluent limitations. These include but are not limited to the following:

Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP);
Flow and water quality monitoring underground and on the surface;
Resolution of permit appeal issues addressing various concerns, including establishment of final effluent limits based on site-specific hardness and dissolved metal translator information;
Development of the Underground Water Management Plan (UWMP) and the SWMP and an annual revision;
SWPPP, UWMP and SWMP training;
Implementation of underground BMPs underground;
Completion of multiple treatability studies to evaluate chemical/physical treatment and biotreatment alternatives;
Preparation and submittal of antidegradation reviews for water transfers between facilities;
Contracting, design, permitting and construction of a treatment plant at Brushy Creek Mine/Mill, gaining valuable experience with full-scale construction and operation of the selected CoMag treatment process; and

Planned Activities

The following activities are planned in order to optimize the overall treatment system and meet final MSOP limits:

15. Upon completion of the construction of the West Fork wastewater treatment facility, all mine water from the Fletcher Mine/Mill will be pumped to the West Fork for treatment.
16. Stormwater storage, diversion, and overflow evaluation.
 - After Fletcher begins transferring all of its mine water and any excess tailings water to the West Fork mine, the existing mine water basin will no longer receive any process wastewater (mine water) or any water that has been exposed to industrial materials. However, the mine water settling basin will continue to receive storm water runoff and direct precipitation and may release water through its spillway to Bee Fork Creek. After initiating the transfer to West Fork, Doe Run plans to monitor flows leaving the mine water basin and assess compliance with the applicable effluent limits. Based on the results of the monitoring, if the water quality data demonstrate no exposure to industrial activities, Doe Run will request that Outfall 001 be eliminated from the Fletcher MSOP. If the water quality data demonstrates an on-going source of metals loading within the basin, such as sediment resuspension, Doe Run will assess alternatives to either eliminate or reduce discharges or to reduce pollutant loading to allow the

outfall to meet applicable effluent limits. The assessment will consider diverting stormwater runoff, capping, or dredging sediments to enable the basin to meet applicable limits.

Schedule

A schedule of the planned implementation activities has been developed based on the experience and timing of similar activities that have taken place at the Brushy Creek facility. The schedule is presented in Figure 3-1. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

	2015											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Stormwater storage / diversion evaluation												
Installation of Pipeline from Fletcher to West Fork												
Transfer all Mine Water to West Fork												

Figure 3-44. Implementation Schedule.

Exhibit U



**SURFACE WATER
MANAGEMENT PLAN
for the
DOE RUN COMPANY - WEST FORK FACILITY
(MSOP No. MO-0100218)**

**The Doe Run Resources Corporation
d/b/a The Doe Run Company**

**Revised
May 2014**

Introduction

This document presents a revised Surface Water Management Plan (SWMP) for The Doe Run Company West Fork facility. The original SWMP was prepared in August 2012 and a previous revision was completed in August 2013. This revision includes the most recent data for the facility and current plans and schedule for implementation activities that will result in compliance with final Missouri State Operating Permit (MSOP MO-0100218) terms, conditions, and limitations. Previous versions of the SWMP included substantial background information on the facility that has not been included in this revision in an effort to streamline the content of this document.

Facility Description

The West Fork facility is located in Reynolds County, Missouri, approximately 16 miles south of Viburnum (Figure 1-1).

The West Fork mine is connected below surface to the Brushy Creek and Fletcher underground mines. Milling operations at West Fork ceased in 2000. Ore was subsequently hoisted to the surface at Fletcher and milled there. An aerial layout map of the West Fork facility is depicted in Figure 1-2 and a more detailed view of the facility around the former mill building is shown in Figure 1-3. These figures show several features relevant to this SWMP, including the following:

Office/shop/warehouse building – This building currently houses accounting, human resources and safety managers for Doe Run’s Southeast Missouri (SEMO) operations, as well as a training center.

Mill building – Ore milling was historically conducted at the mill building, but it has not been used for that purpose since 2000.

Mine water basin – Mine water is pumped from the mine through the production shaft to the mine water basin. Water collected in the mine water basin undergoes treatment via settling before flowing to the existing biotreatment system.

Tailings impoundment – When the mill was in operation, the tailings impoundment received process wastewater (tailings) from the milling of ore. Currently, mine water that exceeds the capacity of the existing mine water treatment system is pumped to the tailings impoundment.

Outfall 001 is the primary outfall for mine water, storm water runoff, and transfers of water from the tailings impoundment. Treatment is provided by settling and a majority of the mine water is treated in the biotreatment system. Outfall 001 discharges to the West Fork Black River.

Outfall 002 is a no-discharge outfall for the facility’s sanitary wastewater system.

Outfall 003 is the outfall for emergency overflows from the concrete stormwater collection basin. Under normal operation, flows that exceed the capacity of the treatment system are pumped back to the tailings impoundment. Outfall 003 is designed to only discharge under extreme storm events when the combined treatment and pumping capacity of the system is exceeded.

Outfall 004 is the outfall for the tailings impoundment emergency spillway. This outfall is designed and managed to only discharge in extreme precipitation events.

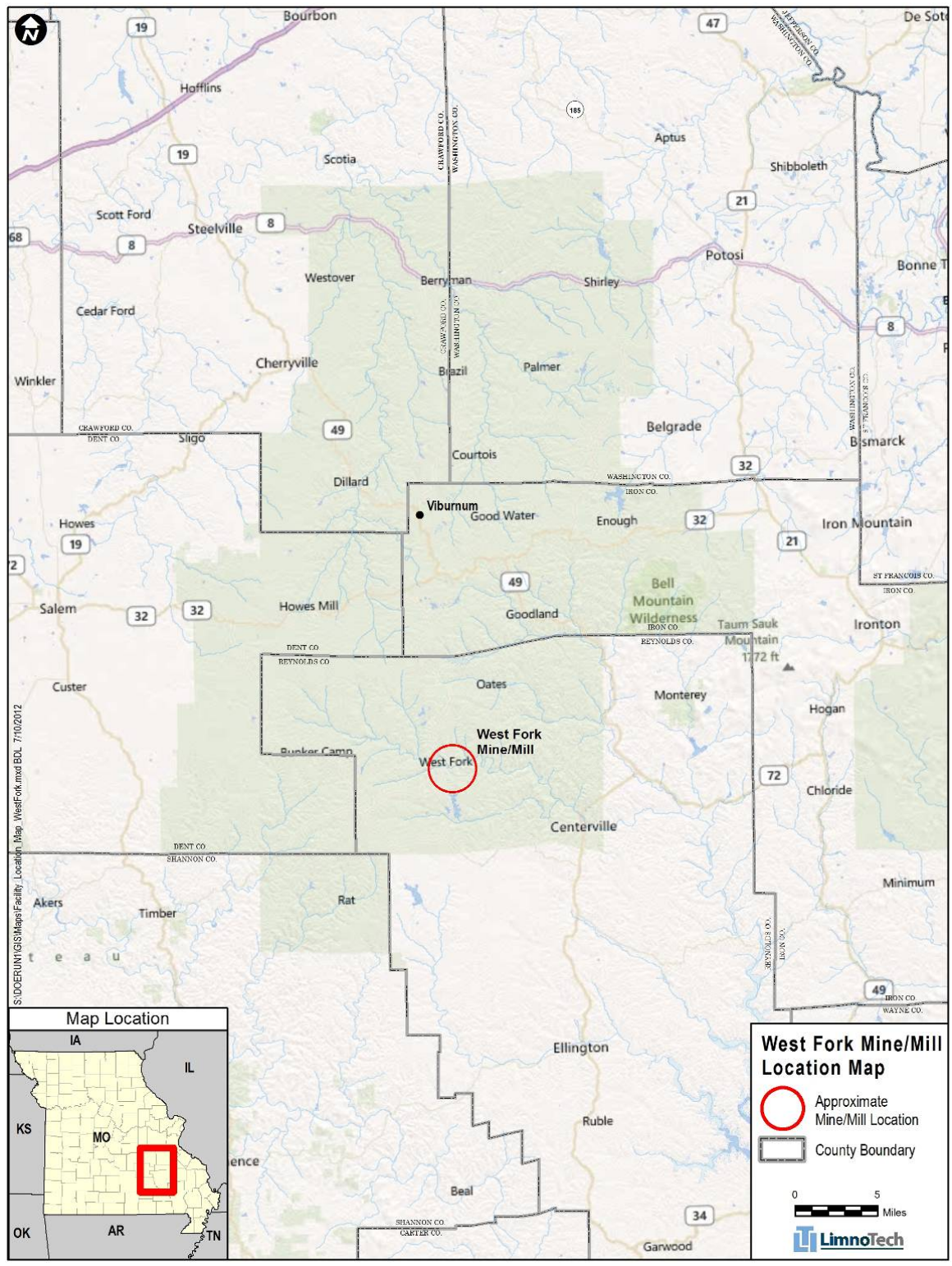


Figure 1-45. Location of the West Fork Facility.

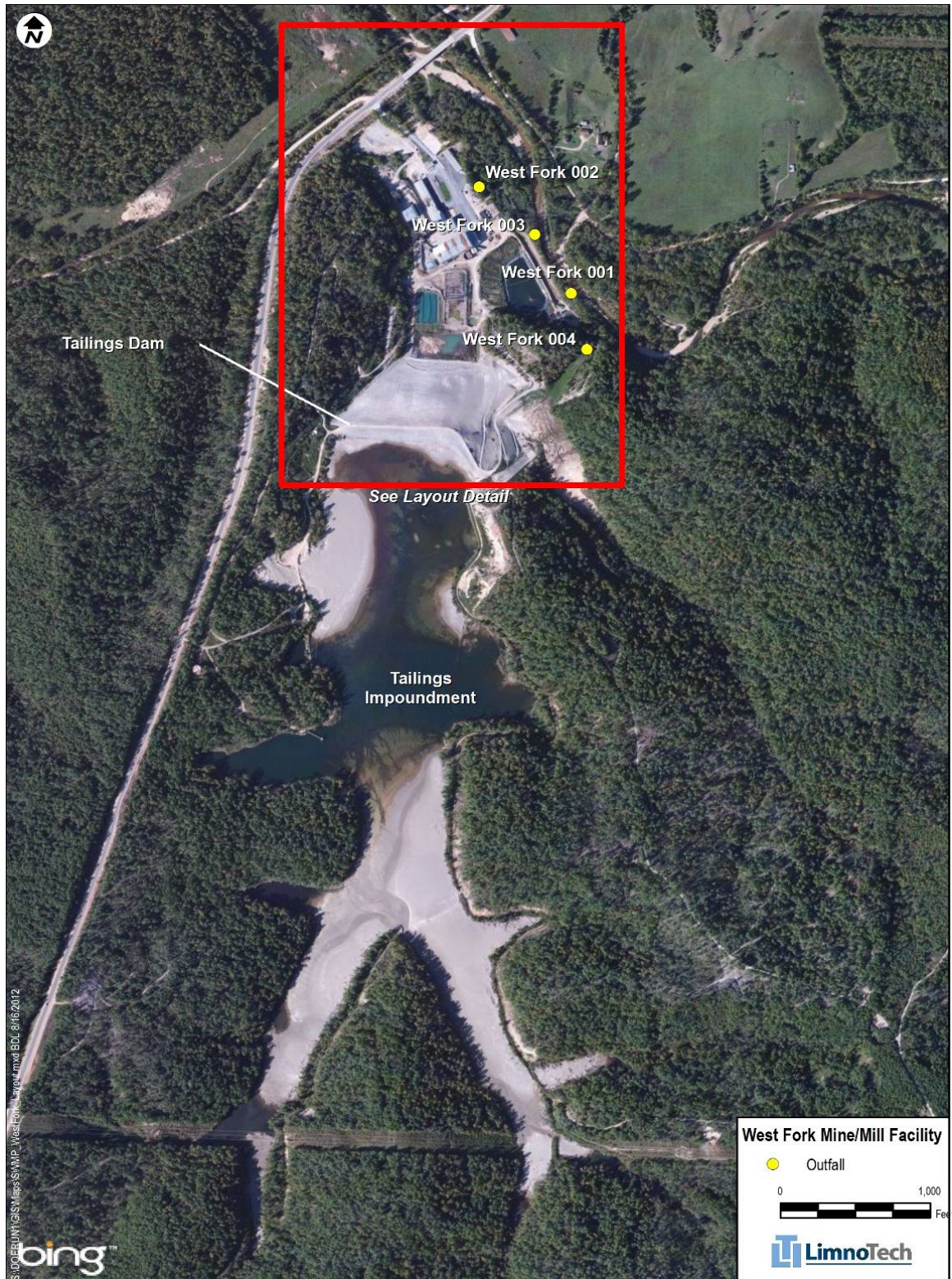


Figure 1-46. West Fork Layout



Figure 1-47. West Fork Layout Detail.

West Fork Surface Water Management Team

Surface water management for the West Fork facility will be the responsibility of the individuals named in Table 1-1. All of the individuals named are employees of The Doe Run Company.

Table 1-5. West Fork Facility Surface Water Management Team.

Job Title	Name	Contact Info	Role/Responsibilities
Environmental Compliance Supervisor	Amy Sanders	P.O. Box 500 Viburnum, MO 65566 573- 689-4535	Environmental data collection, management, reporting, and compliance.
EHS Regulatory Manager	Mark Cummings	P.O. Box 500 Viburnum, MO 65566 573- 244-8152	Oversight of Environmental Permitting
Mill Manager	John Boyer	P.O. Box 500 Viburnum, MO 65566 573-689-4263	Oversight and management of Doe Run mill operations
Chief Engineer	Dan Buxton	P.O. Box 500 Viburnum, MO 65566 573-244-8142	Oversight of major water management measures evaluation and design
Environmental Engineering Supervisor	Kevin James	P.O. Box 500 Viburnum, MO 65566 573-626-2096	Oversight of wastewater treatment.
General Maintenance Manager	Gene Hites	P.O. Box 500 Viburnum, MO 65566 573-689-4151	Management of facility maintenance issues and personnel
Fletcher/West Fork Mill Superintendent	Dwain Beck	P.O. Box 500 Viburnum, MO 65566 573-689-4120	West Fork SWMP Primary Oversight, Implementation
Fletcher/West Fork General Maintenance Supervisor	Randy Blount	P.O. Box 500 Viburnum, MO 65566 573-689-4122	West Fork SWMP Secondary Oversight, Implementation, and maintenance record-keeping

Water Balance and Source Identification

This section summarizes the sources and quantities of water at the facility requiring management and treatment.

Mine Water

Mine water is pumped to the surface at the mine shaft and is currently routed to the mine water basin which provides treatment via settling. The water then flows into two anaerobic biocells for additional treatment. Effluent from the biocells receives further polishing in a rock filter and an aeration basin prior to discharge. Average mine water flow rates are estimated to be 1.55 MGD (~1,100 gpm).

The existing mine water treatment system has a capacity of 1.7 MGD (1,200 gpm). If mine water pumping rates exceed that capacity, the excess mine water flows into the seep basin at the foot of the tailings dam and then into the concrete stormwater collection basin located downstream of the biocells. This water is then pumped into the tailings impoundment.

Precipitation and Stormwater Runoff

The average annual rainfall for the area is 38 inches. Figure 2-1 shows the drainage areas contributing stormwater runoff in the mine/mill area and the tailings impoundment. The total volume of direct precipitation and stormwater runoff requiring management and treatment was estimated to be 0.61 MGD on an average annual basis. Runoff during large storm events is substantially larger.

Mine Water Transfer from Fletcher

In an effort to obtain cost-efficiencies by building fewer, larger treatment plants, mine water pumped to the surface at the Fletcher Mine/Mill will be transferred via aboveground pumping and piping to the West Fork facility for treatment. A conceptual layout of the water transfer is presented in Figure 2-2. The current estimate of the transfer of mine water from Fletcher to West Fork is 5.8 MGD (~4,030 gpm).

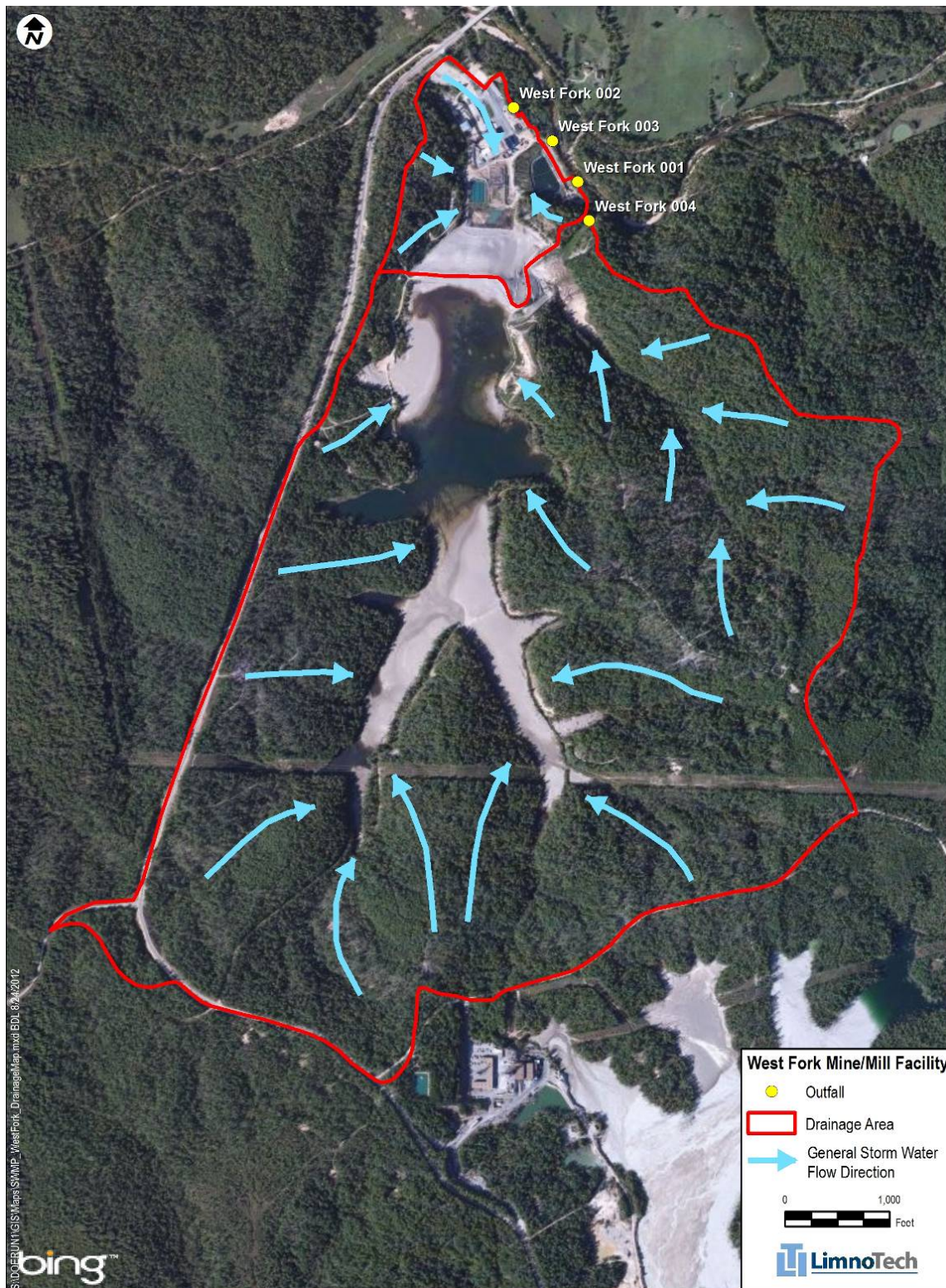


Figure 2-48. Stormwater Drainage Areas and Flow Paths at the West Fork Facility.

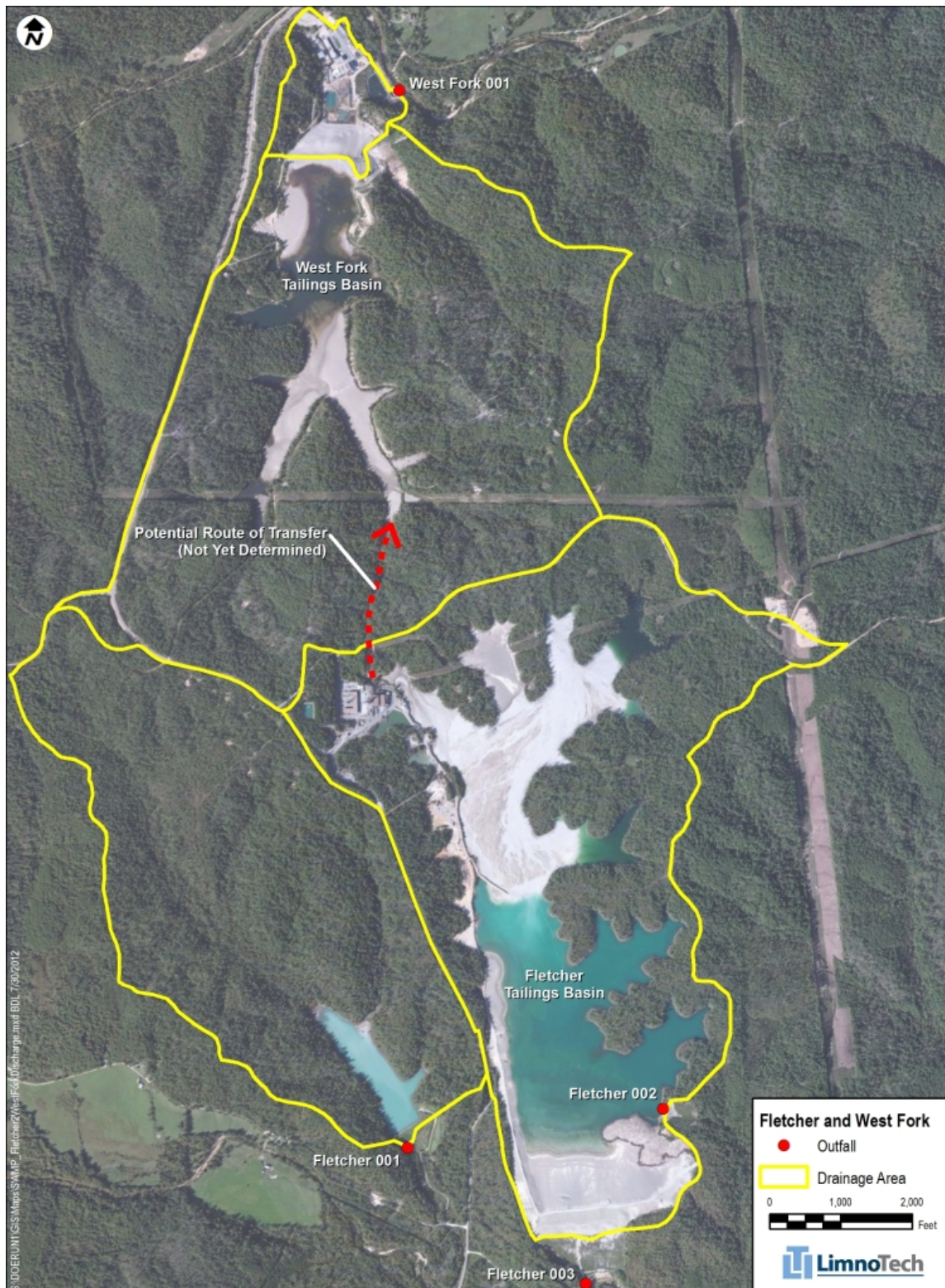


Figure 2-49. Conceptual Layout of Proposed Mine Water Transfer from Fletcher to West Fork.

Facility Water Balance

A schematic of the water balance and proposed treatment system for the facility is presented in Figure 2-3.

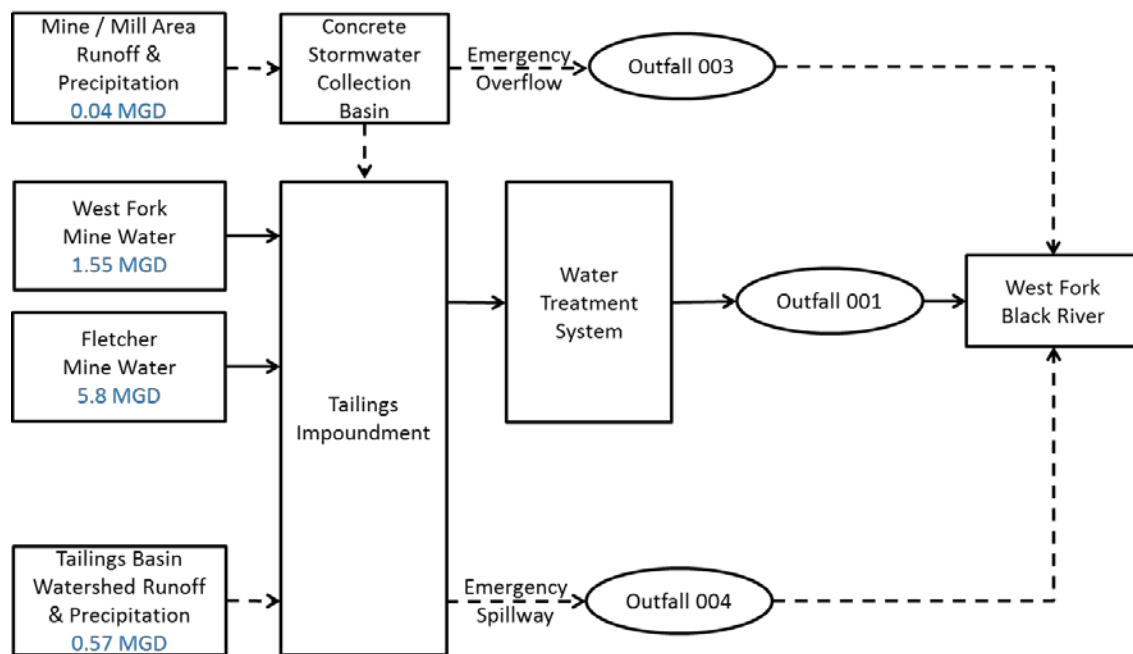


Figure 2-50. Water Balance and Conceptual Treatment Schematic.

Water Quality Monitoring

Water quality monitoring has been conducted at the West Fork facility as required by the MSOP as well as additional monitoring to support the SWMP. Water quality data for select parameters collected from January 2012 through March 2014 are displayed in the figures below. These data are being used to evaluate surface water management practices and treatment needs at the facility. Supplemental monitoring may be performed to evaluate various water management measures and treatment requirements. The sampling locations presented in the figures include:

- Outfall 001: Permit-required monitoring;
- WF-FLMineWater: Mine water pumped to the surface; and
- WF-BARGE PUMP: Monitoring of tailings impoundment water at the barge pump.

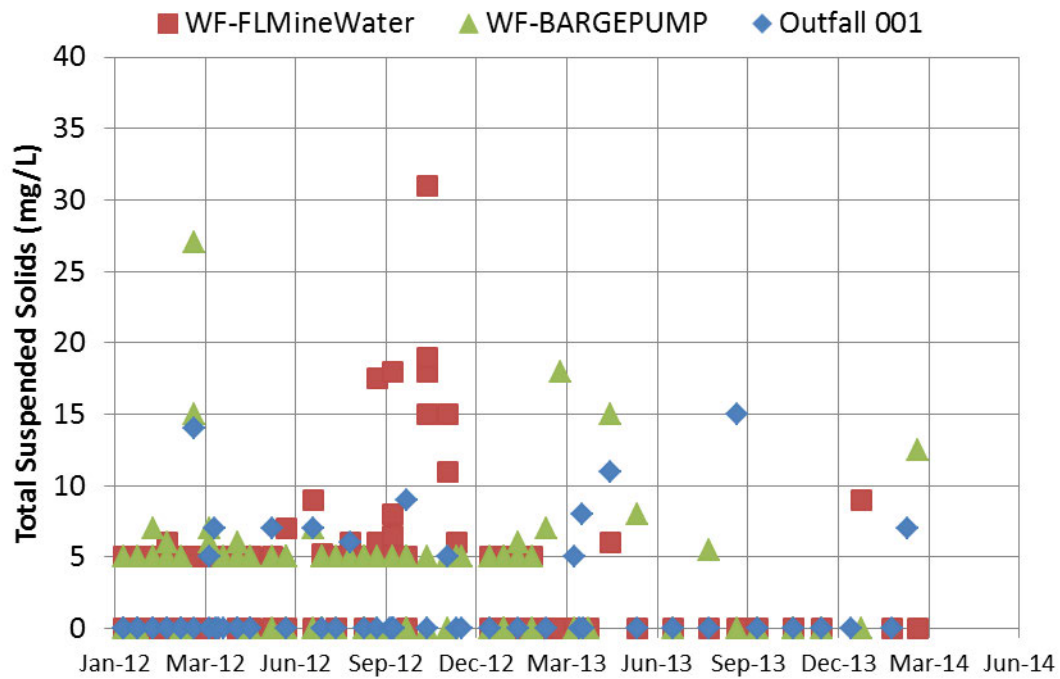


Figure 2-51. Monitoring of TSS at Surface Sampling Locations.

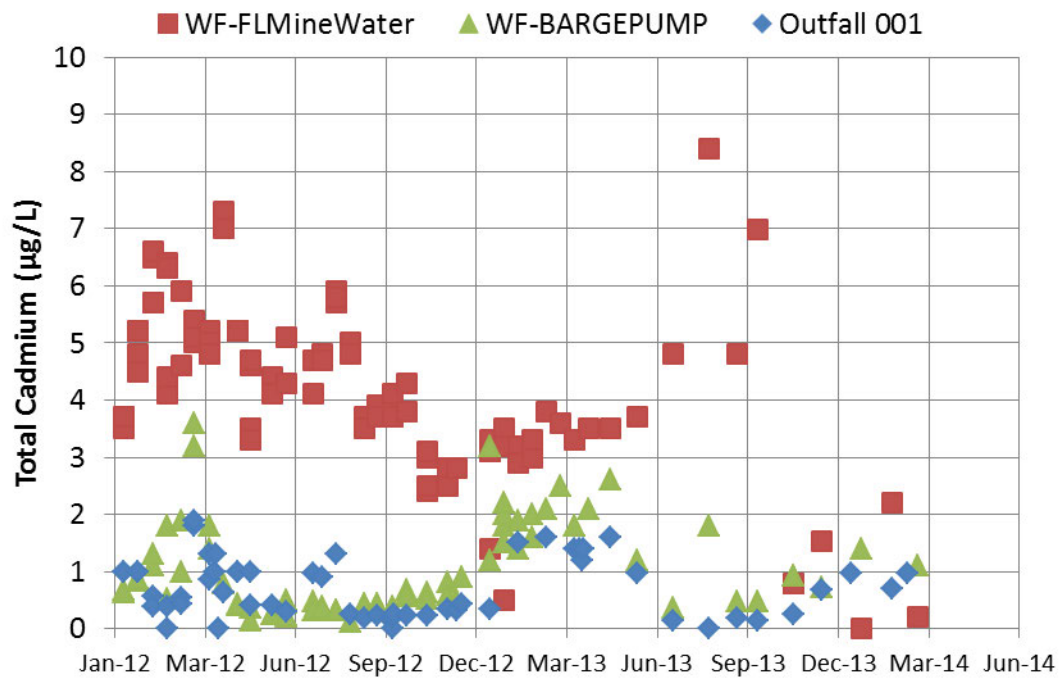


Figure 2-52. Monitoring of Cadmium at Surface Sampling Locations.

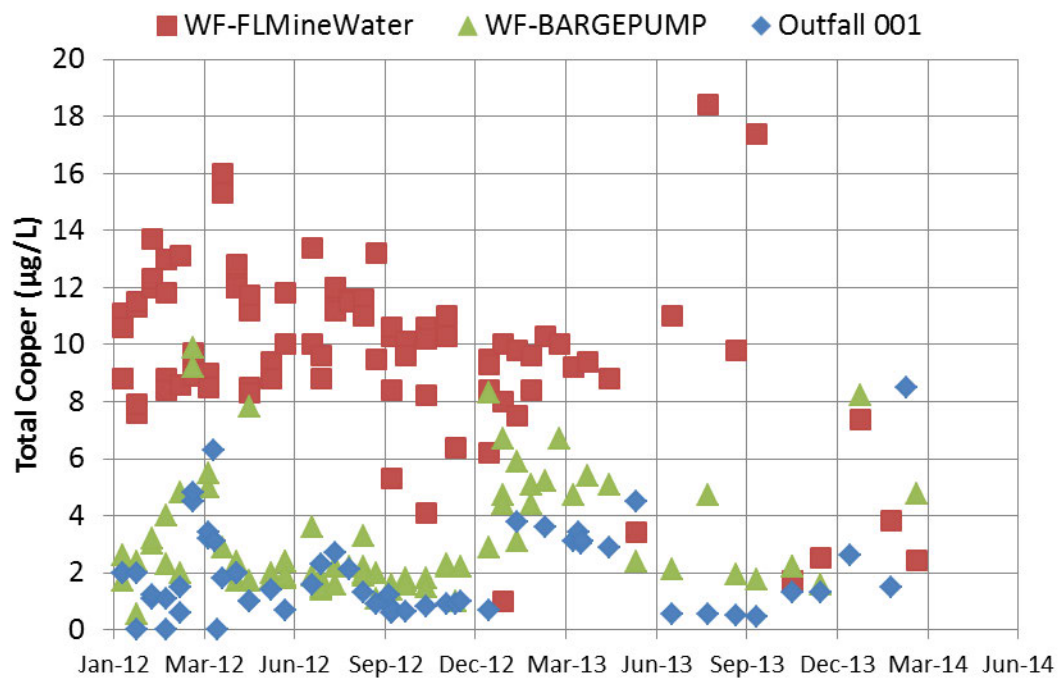


Figure 2-53. Monitoring of Copper at Surface Sampling Locations.

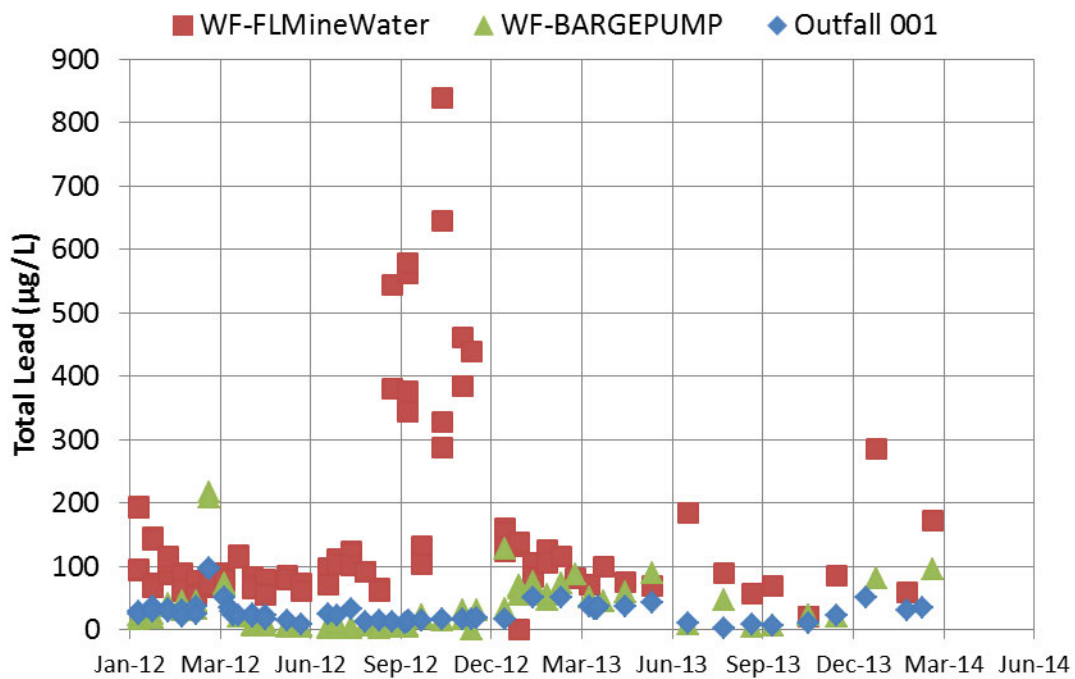


Figure 2-54. Monitoring of Lead at Surface Sampling Locations.

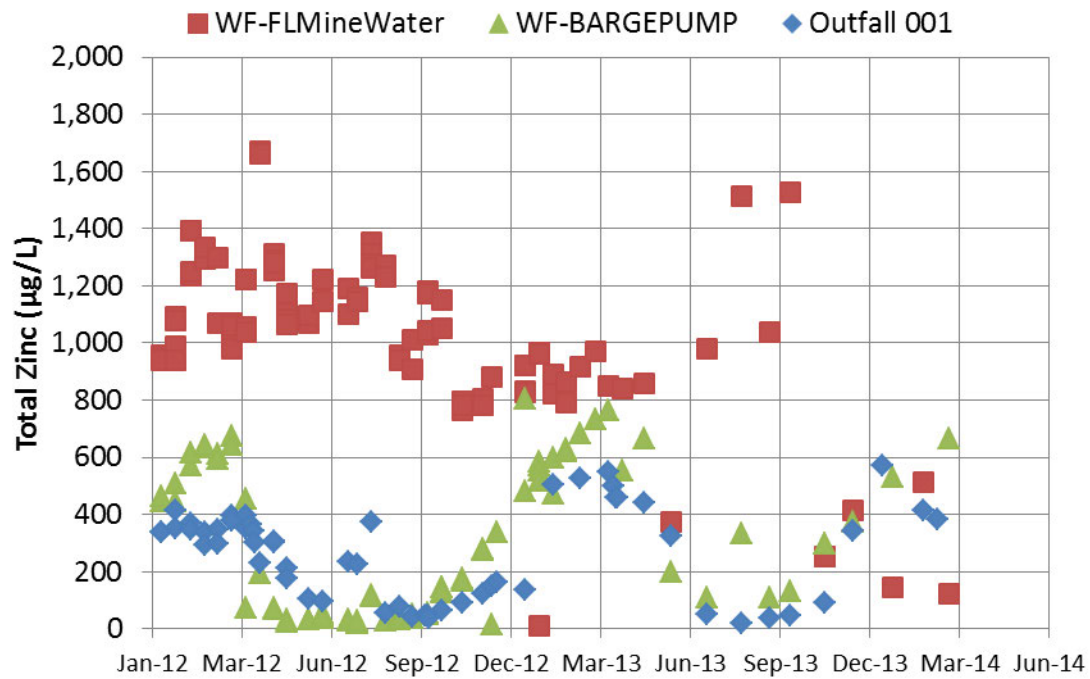


Figure 2-55. Monitoring of Zinc at Surface Sampling Locations.

Plan Implementation

Implementation activities to attain compliance with MSOP terms, conditions, and final effluent limitations are detailed in this section. A schedule for these activities is also included. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Completed Activities

Several activities have already been completed that support the effort to comply with MSOP terms, conditions and final effluent limitations. These include but are not limited to the following:

Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP);
Flow and water quality monitoring underground and on the surface;
Resolution of permit appeal issues addressing various concerns, including establishment of final effluent limits based on site-specific hardness and dissolved metal translator information;
Development of the Underground Water Management Plan (UWMP) and the SWMP and an annual revision;
SWPPP, UWMP and SWMP training;
Implementation of underground BMPs underground;
Completion of multiple treatability studies to evaluate chemical/physical treatment and biotreatment alternatives;
Pilot testing to assess benefits of mine water transfers to the tailings impoundment prior to treatment and discharge;
Preparation and submittal of antidegradation reviews for water transfers between facilities;
Contracting, design, permitting and construction of a treatment plant at Brushy Creek Mine/Mill, gaining valuable experience with full-scale construction and operation of the selected CoMag treatment process; and
Contracting for design and construction of a treatment plant at West Fork facility.

Planned Activities

The following activities are planned in order to optimize the overall treatment system and meet final MSOP limits:

17. Storm water storage, diversion, and overflow evaluation
 - Building treatment plants to handle peak runoff flows during extreme events is not feasible. An evaluation of peak runoff volumes and rates and the feasibility of storage and diversion options is needed to appropriately size the treatment plant and limit overflows to acceptable precipitation event conditions.
 - Storm water management alternatives, such as storage and storm water runoff diversions, will be assessed to optimize treatment of mine water and storm water runoff and limit the occurrence of overflows.
18. Pilot testing

- Based on the design flows determined under the evaluation of storm water and mine water management, pilot testing will be completed to understand the most cost effective and reliable water treatment process.
- Pilot testing will require initial set-up, sampling, monitoring, review, process adjustments, and final verification.

19. Design

- Following the determination of design flow and treatment process, Doe Run's contractor will begin design and construction of the water treatment system.
- Plant siting will require land surveying, geotechnical investigations, drainage evaluations, preliminary design of pumping systems, and an overall feasibility evaluation in order to find the optimal location for the plant.
- Design of the plant includes consideration of the building, utilities, equalization influent pumping, reaction tanks, clarifier, effluent tank, sludge management, chemical feed, HVAC, and fire protection.

20. Site Work

- Erosion and sediment controls will be installed prior to land disturbing activities.
- Construction of access road to construction site.
- Site work to prepare construction site.
- Construct delivery of utilities to site.
- Construct piping from lift station to treatment system.
- Construct piping from treatment system to outfall.
- Storm water drainage.
- Final grading.

21. Construction

- Laydown area for onsite storage of materials during construction
- Temporary utilities
- Site security
- Construct foundation, building, tanks, install piping, equipment and controls.

22. Pipeline Construction

- Prior to construction of the transfer pipeline from West Fork to Fletcher, an assessment will be conducted to determine if a land disturbance permit is required. If required, Doe Run will take the necessary steps to obtain such permit.

23. Permitting

- Although a construction permit is not required for the construction of the water treatment facility, a land disturbance permit may be required.

- An assessment will be performed to determine if a 404 permit is required for any construction activities that may occur in waters of the United States.

24. Plant startup and shakedown

- Water supply for pipe pressure tests and hydrostatic leak tests
- Pressure testing of piping
- Flushing of piping
- Influent pump rotation check
- Hydrostatic leak tests of tanks
- Electrical continuity tests
- Rotation check of equipment
- Clarifier torque test
- Unit process tests
- Instrument and valve calibration
- Check of control system I/O and communications
- Test of control system interlocks, alarms, and operations
- Test of control system communications
- Safety check
- A source for treatment chemicals will be identified and contracted.
- Metering pumps will undergo calibration and control loops will be tuned and adjusted.
- Process chemistry will be adjusted and an iterative cycle of sampling, monitoring, analysis, and adjustment will be needed to optimize the process.

25. Whole Effluent Toxicity (WET) test confirmation period

- Confirmation and monitoring will take place to understand the long term adjustments and operation of the system. Compliance with chronic whole effluent toxicity tests can require fine-tuning chemical additions and adjustments to balance metals removal and toxicity.

Anticipated Bypasses from Storage Structures

Doe Run operates and maintains tailings impoundments and/or mine water basins at its mines. All of these structures have a spillway pipe and/or an emergency spillway. In each Surface Water Management Plan, Doe Run proposes to construct wastewater treatment facilities to treat and discharge water stored in tailings impoundments/mine water basins. However, during certain precipitation conditions, either large single storm events or a series of smaller yet substantial storms³, these impoundments or basins may bypass⁴ stormwater influxes to prevent catastrophic damage to these storage structures.

For example, the Old Viburnum tailings impoundment has a huge, 2,600 acre watershed. Thus, even modest stormwater events send large amounts of water into the Old Viburnum tailings impoundment. It is Doe Run's goal to capture, store and treat up to the one in five year 24-hour event in the Old Viburnum tailings impoundment. Compare this to West Fork tailings impoundment which, for example, has a much smaller watershed and a greater capability to capture and store runoff. At West Fork, it is Doe Run's goal to be able to store up to a 1 in 10 year 24-hour event without bypassing. In conclusion, depending on the watershed size, basin size, and ability to divert stormwater, these basins will bypass during different precipitation conditions.

In regards to the West Fork tailings impoundment, Doe Run plans to manage the tailings impoundment to be able to hold a 1 in 10 year 24-hour event. According to Doe Run's calculations, 1.7 feet of freeboard in the available storage areas of the tailing impoundment will store a 1 in 10 year 24-hour event. For added protection, an additional 2 feet of freeboard below the emergency spillway is desired. This results in a desired maximum normal water surface elevation in the tailings impoundment which maintains a total of 2.0 feet of freeboard below the emergency spillway. Whenever the West Fork tailings impoundment freeboard is less than 2.0 feet, the West Fork wastewater treatment facility will be operated at maximum capacity until such time as the freeboard is returned to 3.7 feet. At this time, it is estimated that the West Fork wastewater treatment facility will be designed to treat between 12,000 and 15,000 gpm.

At West Fork, discharges from Outfall 004 would be authorized during or following precipitation conditions so long as Doe Run complies with the following requirements:

1. The wastewater treatment plant was maintained and operated at maximum capacity at times the freeboard was less than 3.7 feet leading up to the discharge through Outfall 004.
2. The following information would be recorded and reported to DNR in the DMR for months when Outfall 004 discharged:
 - a. Daily treatment and discharge volumes through Outfall 001;
 - b. Daily water surface elevation in the tailings impoundment;
 - c. Daily precipitation;
 - d. Each discharge at Outfall 004 will be sampled and analyzed for pH and settleable solids.

³ A *chronic weather event* is a single stormwater event or a series of wet weather conditions that occur over a ten day period as determined by the University of Missouri's Missouri Climate Center. The Climate Center can make a determination when a chronic weather event is occurring for any given county in Missouri based upon an evaluation of the 1 in 10 year return rainfall frequency over a 10-day, 180-day and 365-day operating period.

⁴ The Department may approve an anticipated bypass, after considering its adverse effects, if the Department receives at least 10 days' notice before the bypass and the Department agrees the bypass was unavoidable to prevent severe property damage, and there are no feasible alternatives to the bypass. 10 CSR 20-7.015 (9)(G)2-4.

Schedule

A schedule of the planned implementation activities has been developed based on the experience and timing of similar activities that have taken place at the Brushy Creek facility. The schedule is presented in Figure 3-1. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Figure 3-56. Implementation Schedule.

[illegible]

Exhibit V



**SURFACE WATER
MANAGEMENT PLAN
for the
DOE RUN COMPANY – VIBURNUM OPERATIONS
(VIBURNUM 28 MINE/MILL
and VIBURNUM 29 MINE)
(MSOP No. MO-0000086)**

**The Doe Run Resources Corporation
d/b/a The Doe Run Company**

**Revised
May 2014**

Introduction

This document presents a revised Surface Water Management Plan (SWMP) for The Doe Run Company Viburnum Operations. The original SWMP was prepared in September 2012 and a previous revision was completed in August 2013. This revision includes the most recent data for the facility and current plans and schedule for implementation activities that will result in compliance with final Missouri State Operating Permit (MSOP MO-000086) terms, conditions, and limitations. Previous versions of the SWMP included substantial background information on the facility that has not been included in this revision in an effort to streamline the content of this document.

Facility Description

The Viburnum Operations are located in Iron and Washington Counties, Missouri, just east and northeast of the City of Viburnum (Figure 1-1). The Viburnum Operations addressed in this plan include the Viburnum 28 mine/mill and the Viburnum 29 mine. An aerial layout map of the Viburnum Operations is depicted in Figure 1-2 and more detailed views of Viburnum 28 mine/mill and Viburnum mine are shown in Figures 1-3 and 1-4. These figures show several features relevant to this SWMP, including the following:

- Old Viburnum tailings impoundment – Tailings from the Viburnum Central Mill were pumped to the old Viburnum tailings impoundment until 1975. At present, the old Viburnum tailings impoundment receives direct precipitation, stormwater runoff from the surrounding drainage area, and truck wash water. The City of Viburnum wastewater treatment plant (WWTP) also discharges to the old Viburnum tailings impoundment.
- New Viburnum tailings impoundment – Tailings from the Viburnum Central Mill were pumped to the new Viburnum tailings impoundment from 1975 until the mill ceased operation in 2000. At present, the new Viburnum tailings impoundment receives direct precipitation and stormwater runoff from the surrounding drainage area.
- Viburnum 29 mine water basins – Mine water is pumped up the production shaft to the mine water basins. These are a series of five mine basins in series that treat the mine water via settling prior to discharge to a tributary to Indian Creek at Outfall 004.
- Viburnum 29 stormwater retention basin – The retention basin will collect all stormwater runoff from the ore loading area. The retention basin will be operated in a no-discharge fashion by pumping back to the mine water basins.
- Viburnum 29 office building – This building currently provides office space for Viburnum 29 mine operations, as well as a change room for mine personnel and the hoist room.
- Viburnum 29 ore loading area – Ore is brought to the surface at the hoist and placed in the ore loading area for temporary storage prior to transfer to the Buick mill via truck.

- Former Viburnum 28 office building – This building formerly housed offices.
- Former Viburnum 28 mill – This building housed the former Viburnum Central mill, but is not currently used.
- Outfall 002 – Outfall 002 (sample ID = Vib 002) is the permitted outfall for the old Viburnum tailings impoundment.
- Outfall 004 – Outfall 004 (sample ID = Vib 004) is the permitted outfall for the Viburnum 29 mine water basins.
- Outfall 005 – Outfall 005 is the permitted outfall for the new Viburnum tailings impoundment emergency spillway. This outfall is designed and managed as a non-discharging outfall and will only discharge in extreme precipitation events.
- Outfall 006 – Outfall 006 is the permitted outfall for the new Viburnum tailings impoundment toe drain. Drainage from the toe drain and stormwater that cannot be pumped back into the tailings impoundment may be discharged via this outfall. This outfall is managed as a non-discharging outfall and will only discharge if extreme precipitation exceeds the pumping capacity or if the pumps are not operating due to power failure.

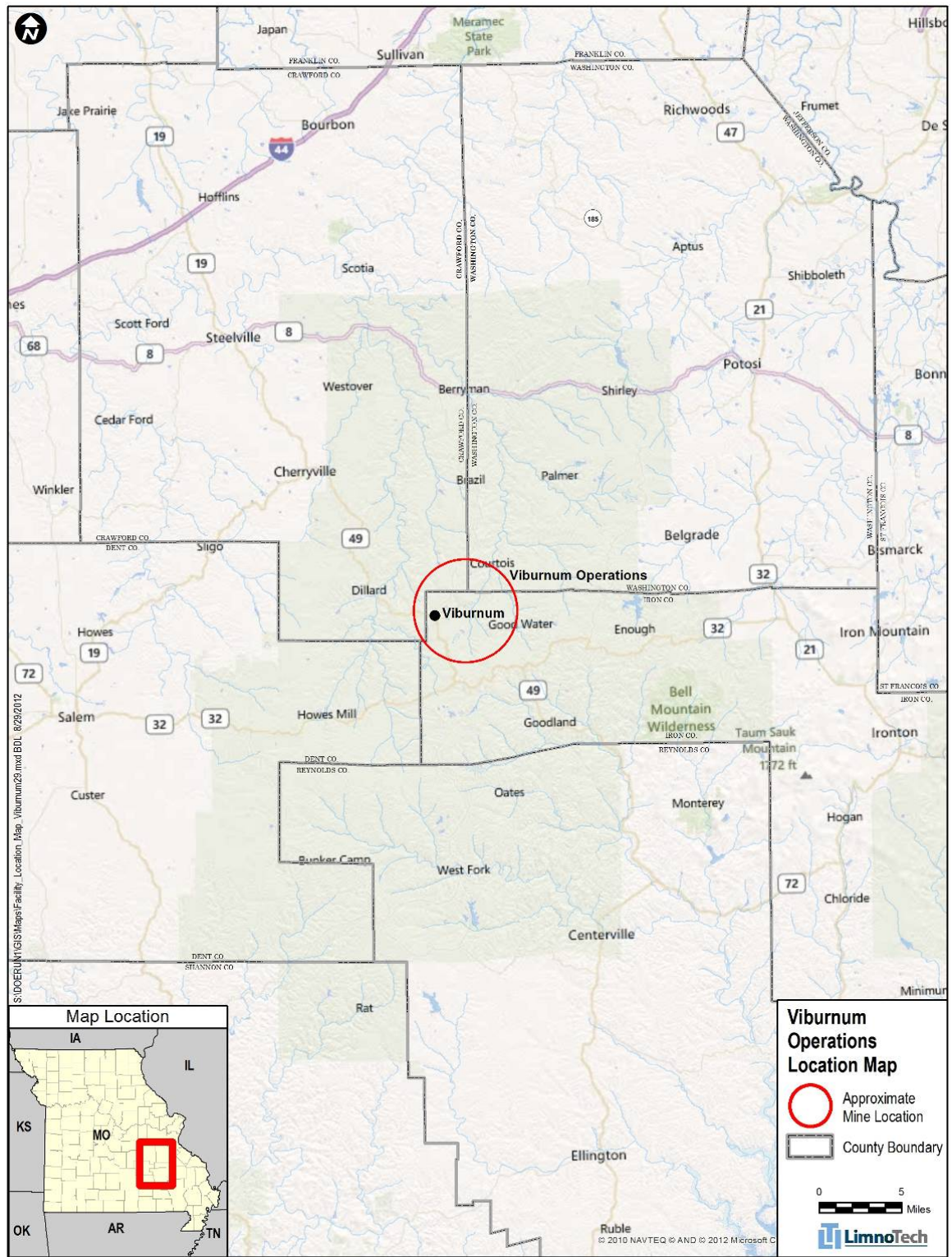


Figure 1-57. Location of the Viburnum Operations.

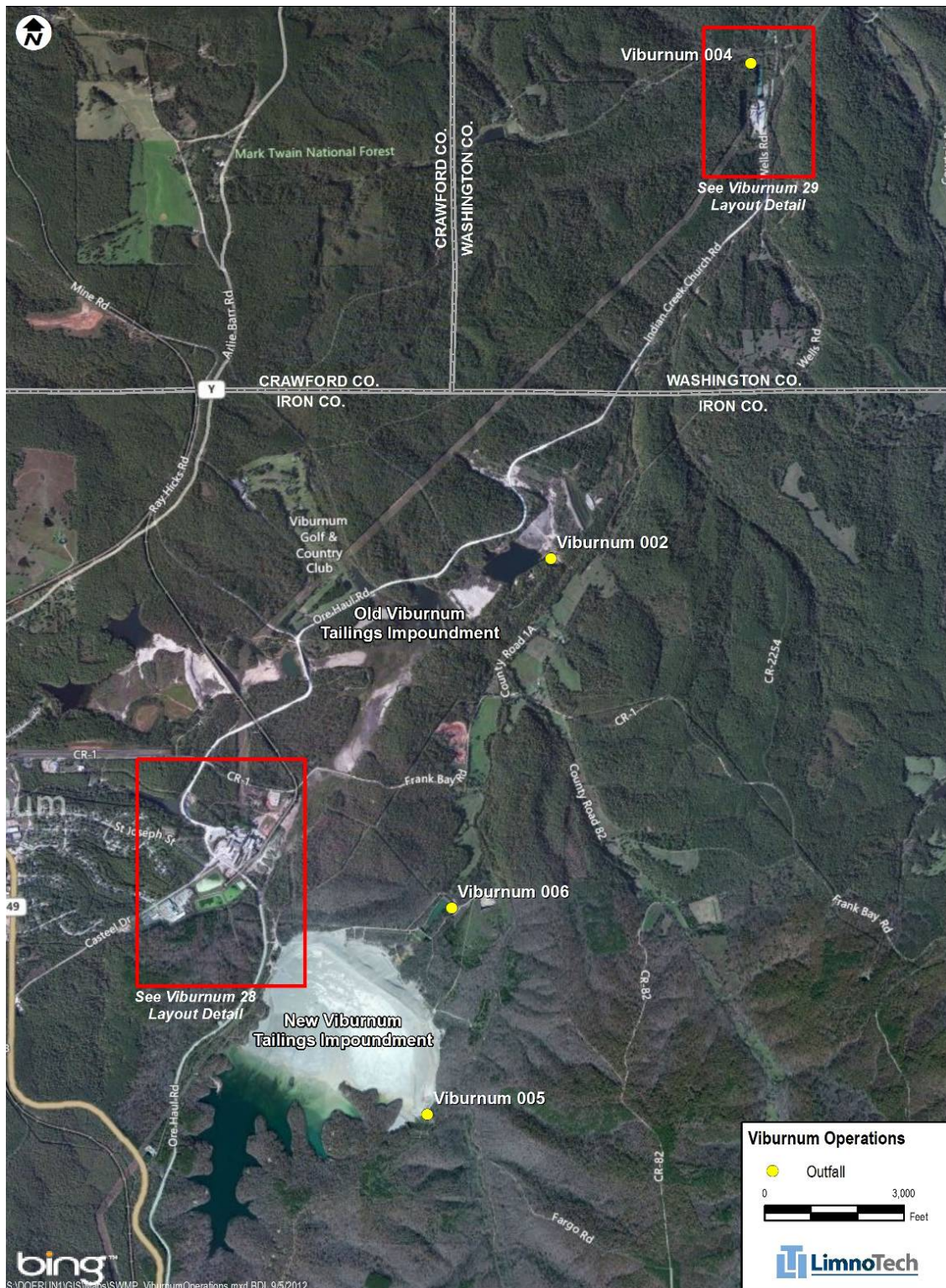


Figure 1-58. Viburnum Operations Layout



Figure 1-59. Viburnum 28 Mine/Mill Layout Detail.



Figure 1-4. Viburnum 29 Mine Layout Detail.

Viburnum Surface Water Management Team

Surface water management for the Viburnum Operations will be the responsibility of the individuals named in Table 1-1. All of the individuals named are employees of The Doe Run Company.

Table 1-6. Viburnum Operations Surface Water Management Team.

Job Title	Name	Contact Info	Role/Responsibilities
Environmental Compliance Supervisor	Amy Sanders	P.O. Box 500 Viburnum, MO 65566 573- 689-4535	Environmental data collection, management, reporting, and compliance.
EHS Regulatory Manager	Mark Cummings	P.O. Box 500 Viburnum, MO 65566 573- 244-8152	Oversight of Environmental Permitting
Mill Manager	John Boyer	P.O. Box 500 Viburnum, MO 65566 573-689-4263	Oversight and management of Doe Run mill operations
Chief Engineer	Dan Buxton	P.O. Box 500 Viburnum, MO 65566 573-244-8142	Oversight of major water management measures evaluation and design
General Maintenance Manager	Gene Hites	P.O. Box 500 Viburnum, MO 65566 573-689-4151	Management of facility maintenance issues and personnel
Environmental Engineering Supervisor	Kevin James	P.O. Box 500 Viburnum, MO 65566 573-626-2096	Oversight of wastewater treatment. Viburnum 28 SWMP Primary Oversight, Implementation
Viburnum 29 General Mine Supervisor	Randy Arndt	P.O. Box 500 Viburnum, MO 65566 573-244-8645	Viburnum 29 SWMP Primary Oversight, Implementation

Water Balance and Source Identification

This section summarizes the sources and quantities of water at the facility requiring management and treatment.

Mine Water

Mine water from the Viburnum 29 Mine is pumped to the surface at the mine shaft and is routed to the mine water basins, which provide treatment via settling. Average mine water flow rates are estimated to be 0.86 MGD (~600 gpm).

Precipitation and Stormwater Runoff

The average annual rainfall for the area is 38 inches. Figure 2-1 shows the drainage areas contributing stormwater runoff in the tailings impoundment. The total volume of direct precipitation and stormwater runoff requiring management and treatment was estimated to be 0.006 MGD for the Viburnum 29 mine water basins, 1.39 MGD for the Old Viburnum tailings impoundment, and 1.13 MGD for the New Viburnum tailings impoundment on an average annual basis. Runoff during large storm events is substantially larger. The total volume of water resulting from a 10-yr, 24-hr rainfall event is 0.27 MG for the Viburnum 29 mine water basins, 146 MG for the Old Viburnum tailings impoundment, and 77 MG for the New Viburnum tailings impoundment. This includes watershed runoff and direct precipitation on the tailings impoundment and mine water basins.

Mine Water Transfer from Casteel

In an effort to obtain cost-efficiencies by building fewer, larger treatment plants, mine water pumped to the surface at the Casteel Mine will be transferred via aboveground pumping and piping to the New Viburnum tailings impoundment. A conceptual layout of the water transfer is presented in Figure 2-2. The current estimate of the transfer of mine water from Casteel to Viburnum is 4.9 MGD (~3,400 gpm).



Figure 2-60. Stormwater Drainage Areas and Flow Paths at the Viburnum Operations.

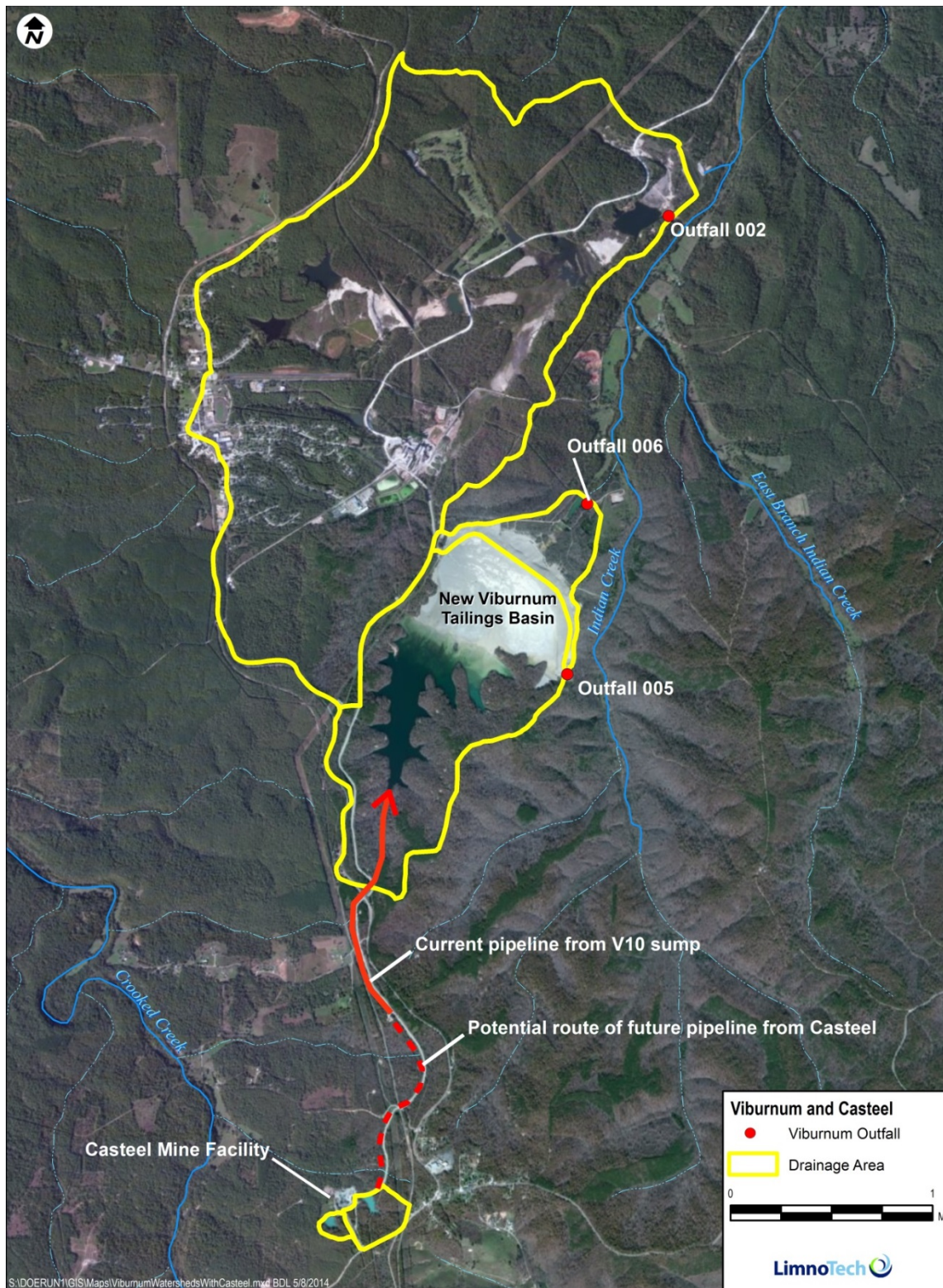


Figure 2-61. Layout of Mine Water Transfer from Casteel to Viburnum.

Facility Water Balance

Schematics of the water balance and proposed treatment system for the Viburnum Operations is presented in Figure 2-3 and Figure 2-4.

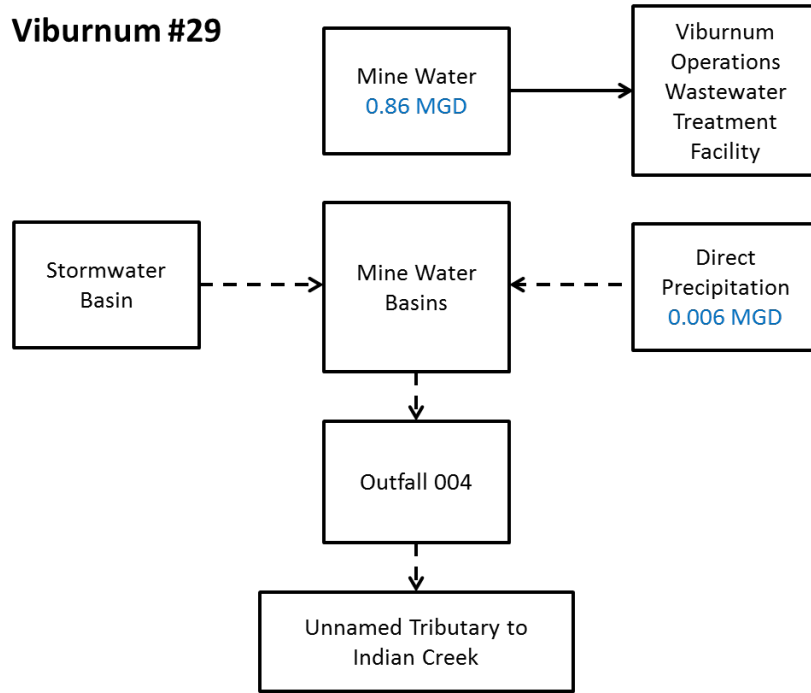


Figure 2-62. Water Balance and Conceptual Treatment Schematic.

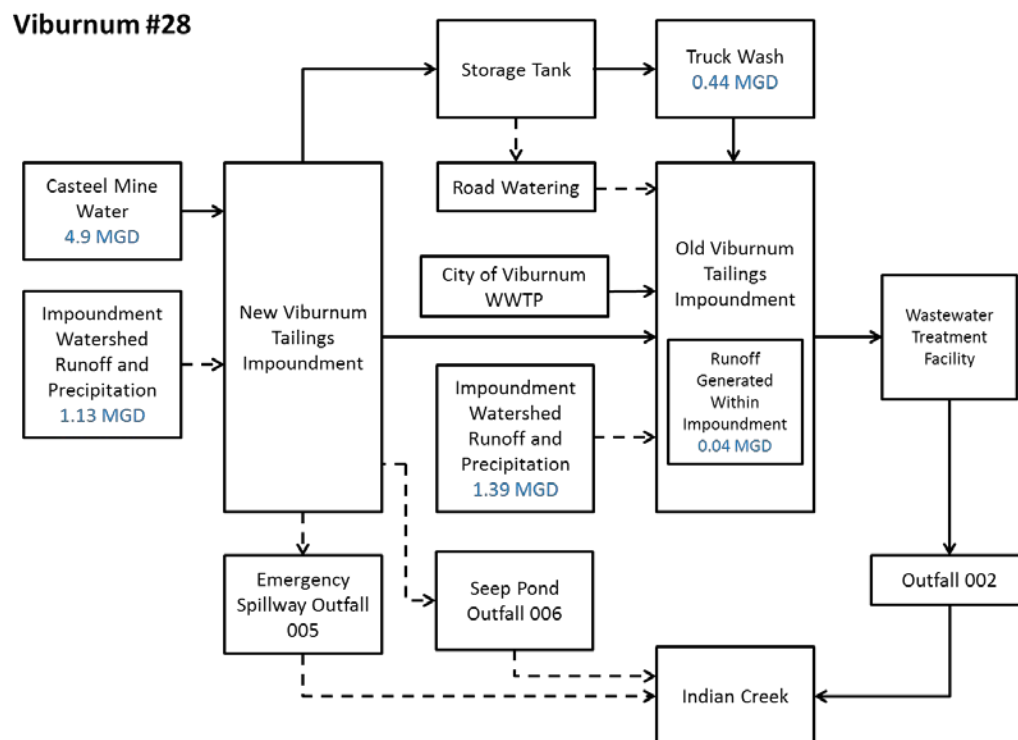


Figure 2-4. Water Balance and Conceptual Treatment Schematic.

Water Quality Monitoring

Water quality monitoring has been conducted at the Viburnum Operations as required by the MSOP as well as additional monitoring to support the SWMP. Water quality data for select parameters collected from January 2012 through April 2014 are displayed in the figures below. These data are being used to evaluate surface water management practices and treatment needs at the facility. Supplemental monitoring may be performed to evaluate various water management measures and treatment requirements. The sampling locations presented in the figures include:

- Outfall 002: Permit-required monitoring;
- Outfall 004: Permit-required monitoring;
- VIB-MWBIN: Monitoring of incoming mine water; and
- VIB-TANK: Monitoring of water transfers from new Viburnum tailings impoundment.

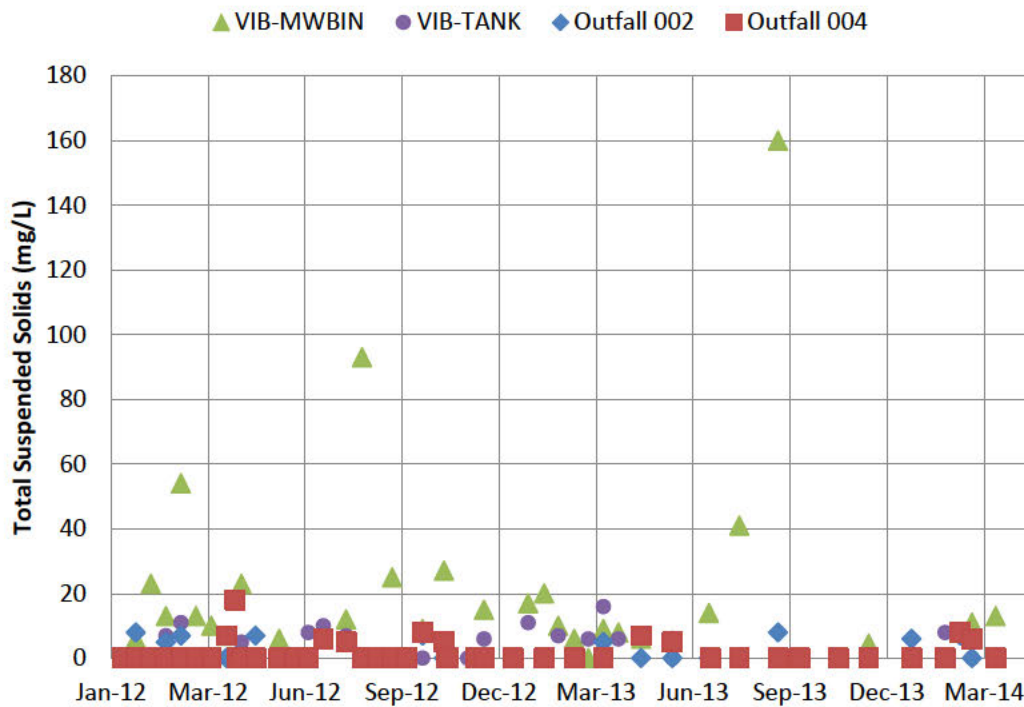


Figure 2-5. Monitoring of TSS at Surface Sampling Locations.

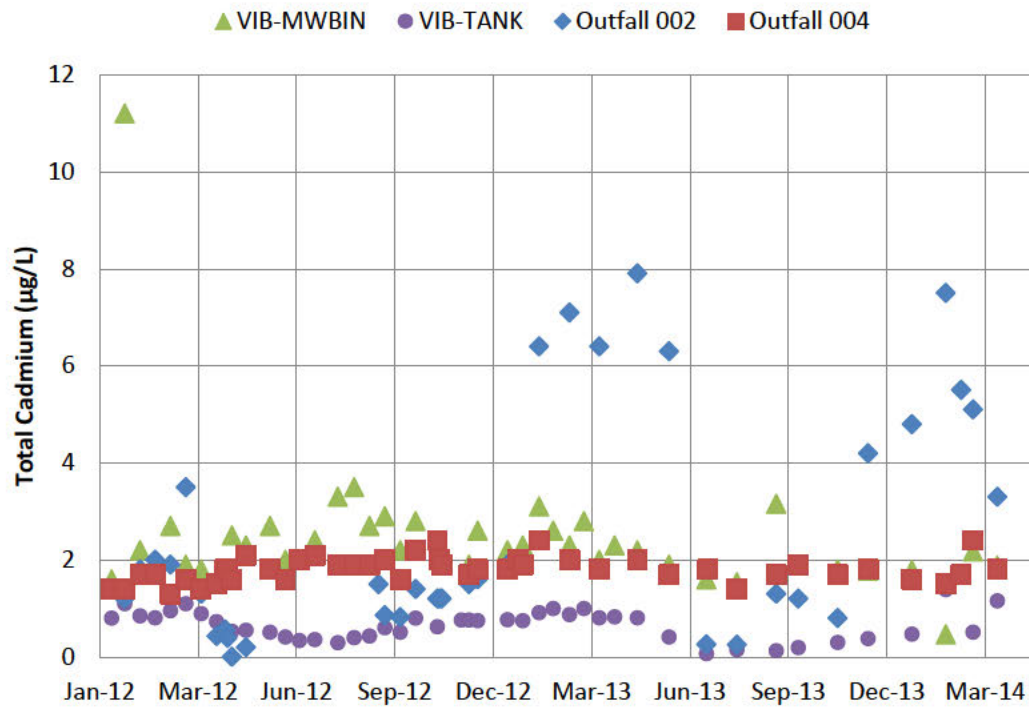


Figure 2-6. Monitoring of Cadmium at Surface Sampling Locations.

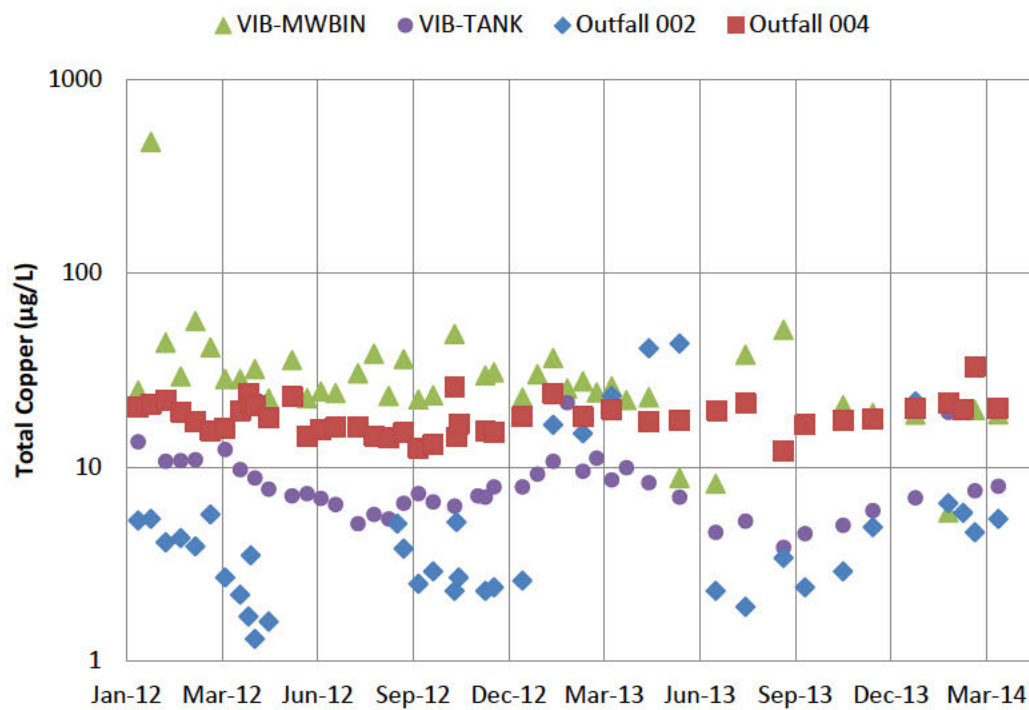


Figure 2-7. Monitoring of Copper at Surface Sampling Locations.

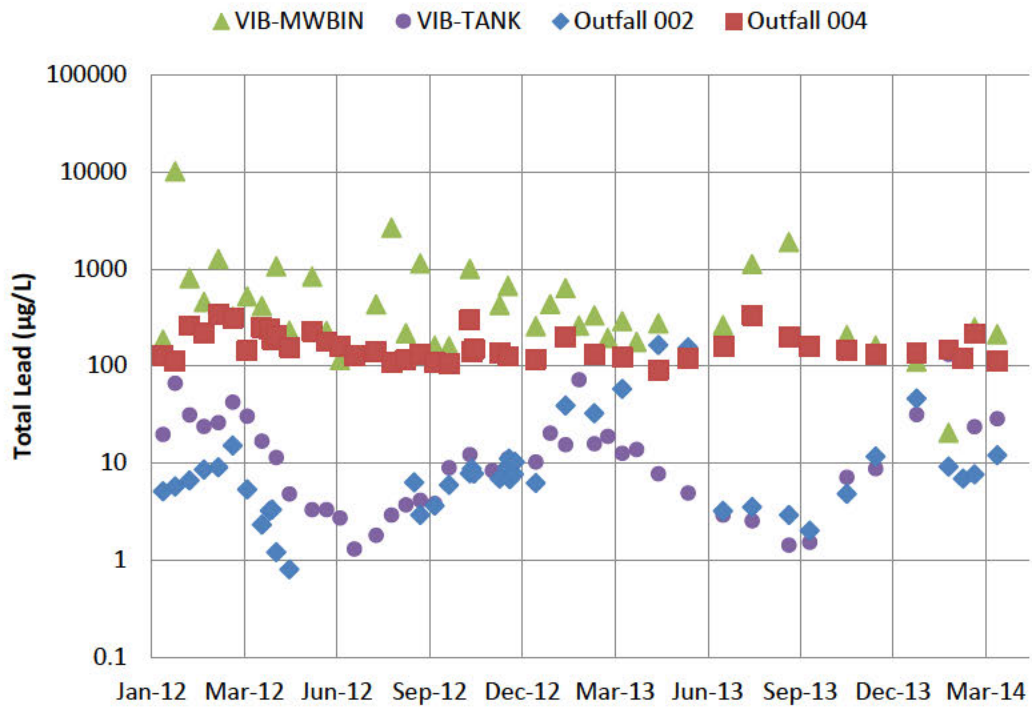


Figure 2-8. Monitoring of Lead at Surface Sampling Locations.

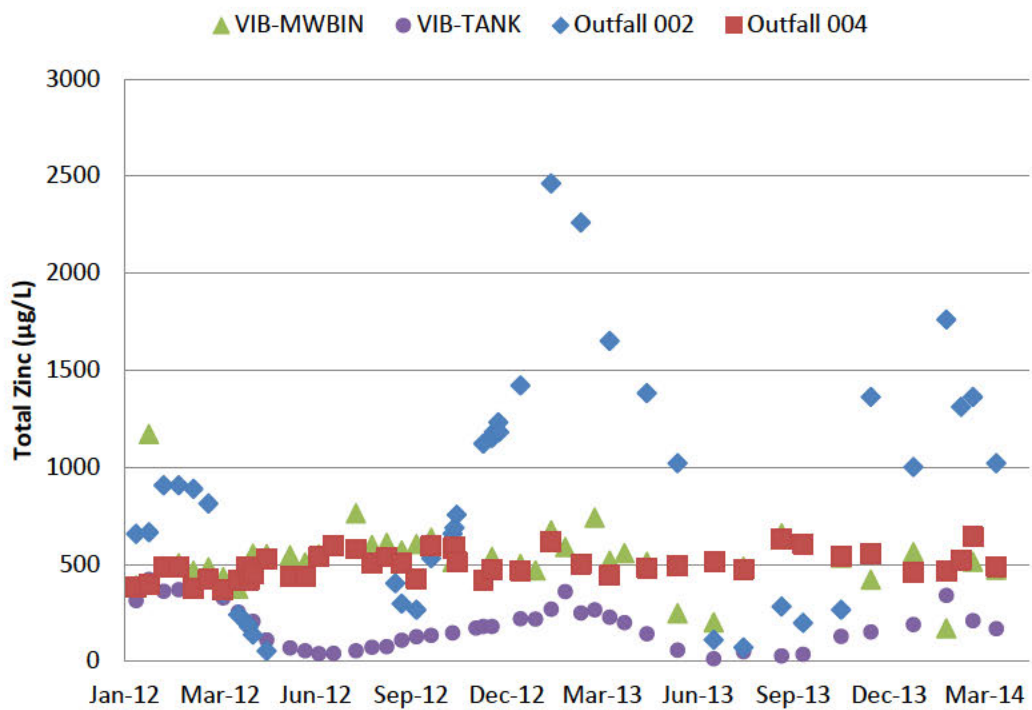


Figure 2-9. Monitoring of Zinc at Surface Sampling Locations.

Plan Implementation

Implementation activities to attain compliance with MSOP terms, conditions, and final effluent limitations are detailed in this section. A schedule for these activities is also included. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Completed Activities

Several activities have already been completed that support the effort to comply with MSOP terms, conditions and final effluent limitations. These include but are not limited to the following:

Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP);
Flow and water quality monitoring underground and on the surface;
Resolution of permit appeal issues addressing various concerns, including establishment of final effluent limits based on site-specific hardness and dissolved metal translator information;
Development of the Underground Water Management Plan (UWMP) and the SWMP and an annual revision;
SWPPP, UWMP and SWMP training;
Implementation of underground BMPs underground;
Completion of multiple treatability studies to evaluate chemical/physical treatment and biotreatment alternatives;
Pilot testing to assess benefits of mine water transfers from Casteel to the new Viburnum tailings impoundment prior to treatment and discharge;
Preparation and submittal of antidegradation reviews for water transfers between facilities;
Contracting, design, permitting and construction of a treatment plant at Brushy Creek Mine/Mill, gaining valuable experience with full-scale construction and operation of the selected CoMag treatment process; and

Planned Activities

The following activities are planned in order to optimize the overall treatment system and meet final MSOP limits:

26. Storm water storage, diversion, and overflow evaluation
 - Building treatment plants to handle peak runoff flows during extreme events is not feasible. An evaluation of peak runoff volumes and rates and the feasibility of storage and diversion options is needed to appropriately size the treatment plant and limit overflows to acceptable precipitation event conditions.
 - Storm water management alternatives, such as storage and storm water runoff diversions, will be assessed to optimize treatment of mine water and storm water runoff and limit occurrence of overflows.
27. Pilot testing

- Based on the design flows determined under the evaluation of storm water and mine water management, pilot testing will be completed to understand the most cost effective and reliable water treatment process.
- Pilot testing will require initial set-up, sampling, monitoring, review, process adjustments, and final verification.

28. Design

- Following the determination of design flow and treatment process, Doe Run's contractor will begin design and construction of the water treatment system.
- Plant siting will require land surveying, geotechnical investigations, drainage evaluations, preliminary design of pumping systems, and an overall feasibility evaluation in order to find the optimal location for the plant.
- Design of the plant includes consideration of the building, utilities, equalization influent pumping, reaction tanks, clarifier, effluent tank, sludge management, chemical feed, HVAC, and fire protection.

29. Site Work

- Erosion and sediment controls will be installed prior to land disturbing activities.
- Construction of access road to construction site.
- Site work to prepare construction site.
- Construct delivery of utilities to site.
- Construct piping from lift station to treatment system.
- Construct piping from treatment system to outfall.
- Storm water drainage.
- Final grading.

30. Construction

- Laydown area for onsite storage of materials during construction
- Temporary utilities
- Site security
- Construct foundation, building, tanks, install piping, equipment and controls.

31. Pipeline Construction

- Prior to construction of the transfer pipeline from West Fork to Fletcher, an assessment will be conducted to determine if a land disturbance permit is required. If required, Doe Run will take the necessary steps to obtain such permit.

32. Permitting

- Although a construction permit is not required for the construction of the water treatment facility, a land disturbance permit may be required.

- An assessment will be performed to determine if a 404 permit is required for any construction activities that may occur in waters of the United States.

33. Plant startup and shakedown

- Water supply for pipe pressure tests and hydrostatic leak tests
- Pressure testing of piping
- Flushing of piping
- Influent pump rotation check
- Hydrostatic leak tests of tanks
- Electrical continuity tests
- Rotation check of equipment
- Clarifier torque test
- Unit process tests
- Instrument and valve calibration
- Check of control system I/O and communications
- Test of control system interlocks, alarms, and operations
- Test of control system communications
- Safety check
- A source for treatment chemicals will be identified and contracted.
- Metering pumps will undergo calibration and control loops will be tuned and adjusted.
- Process chemistry will be adjusted and an iterative cycle of sampling, monitoring, analysis, and adjustment will be needed to optimize the process.

34. Whole Effluent Toxicity (WET) test confirmation period

- Confirmation and monitoring will take place to understand the long term adjustments and operation of the system. Compliance with chronic whole effluent toxicity tests can require fine-tuning chemical additions and adjustments to balance metals removal and toxicity.

Anticipated Bypasses from Storage Structures

Doe Run operates and maintains tailings impoundments and/or mine water basins at its mines. All of these structures have a spillway pipe and/or an emergency spillway. In each Surface Water Management Plan, Doe Run proposes to construct wastewater treatment facilities to treat and discharge water stored in tailings impoundments/mine water basins. However, during certain precipitation conditions, either large single storm events or a series of smaller yet substantial storms⁵, these impoundments or basins may bypass⁶ stormwater influxes to prevent catastrophic damage to these storage structures.

For example, the Old Viburnum tailings impoundment has a huge, 2,656 acre watershed with portions of it in the developed areas of the City of Viburnum. Thus, even modest stormwater events send large amounts of water into the Old Viburnum tailings impoundment. It is Doe Run's goal to capture, store and treat up to the one in five year 24-hour event in the Old Viburnum tailings impoundment. Compare this to the New Viburnum tailings impoundment which, for example, has a much smaller watershed (810 acres) and a greater capability to capture and store runoff. At the New Viburnum tailings impoundment, it is Doe Run's goal to be able to store up to a 1 in 10 year 24-hour event without bypassing. In conclusion, depending on the watershed size, basin size, and ability to divert stormwater, these basins will bypass during different precipitation conditions.

In regards to the New Viburnum tailings impoundment, Doe Run plans to manage the tailings impoundment to be able to hold a 1 in 10 year 24-hour event. According to Doe Run's calculations, 2 feet of freeboard in the available storage areas of the tailing impoundment will store a 1 in 10 year 24-hour event. Whenever the New Viburnum tailings impoundment freeboard is less than 2 feet, the Viburnum wastewater treatment facility will be operated at maximum capacity until such time as the freeboard is returned to 2 feet.

In regards to the Old Viburnum tailings impoundment, Doe Run plans to manage the tailings impoundment to be able to hold a 1 in 5 year 24-hour event. According to Doe Run's calculations, a combination of storage structures at various locations within the drainage area, storage within the Old Viburnum tailings impoundment, and diversion of stormwater not exposed to industrial activity directly to Indian Creek is needed to accomplish this.

At this time, it is estimated that the Viburnum wastewater treatment facility will be designed to treat between 8,000 and 12,000 gpm.

At Viburnum, discharges from Outfall 002 (Old Viburnum overflow) and Outfall 005 (New Viburnum emergency spillway) would be authorized during or following precipitation conditions so long as Doe Run complies with the following requirements:

3. The wastewater treatment plant was maintained and operated at maximum capacity at times the freeboard was less than 2 feet in the New Viburnum tailings impoundment leading up to the discharge through Outfall 005.

⁵ A *chronic weather event* is a single stormwater event or a series of wet weather conditions that occur over a ten day period as determined by the University of Missouri's Missouri Climate Center. The Climate Center can make a determination when a chronic weather event is occurring for any given county in Missouri based upon an evaluation of the 1 in 10 year return rainfall frequency over a 10-day, 180-day and 365-day operating period.

⁶ The Department may approve an anticipated bypass, after considering its adverse effects, if the Department receives at least 10 days' notice before the bypass and the Department agrees the bypass was unavoidable to prevent severe property damage, and there are no feasible alternatives to the bypass. 10 CSR 20-7.015 (9)(G)2-4.

[illegible]

Exhibit W



**SURFACE WATER
MANAGEMENT PLAN
for the
DOE RUN COMPANY - SWEETWATER MINE/MILL
(MSOP No. MO-0001881)**

**The Doe Run Resources Corporation
d/b/a The Doe Run Company**

**Revised
May 2014**

Introduction

This document presents a revised Surface Water Management Plan (SWMP) for The Doe Run Company Sweetwater Mine/Mill. The original SWMP was prepared in October 2012 and a previous revision was completed in August 2013. This revision includes the most recent data for the facility and current plans and schedule for implementation activities that will result in compliance with final Missouri State Operating Permit (MSOP MO-0001881) terms, conditions, and limitations. Previous versions of the SWMP included substantial background information on the facility that has not been included in this revision in an effort to streamline the content of this document.

Facility Description

The Sweetwater Mine/Mill is located in Reynolds County, Missouri, approximately 26 miles south of Viburnum (Figure 1-1).

The Sweetwater Mine is the southernmost mine in the Viburnum Trend. An aerial layout map of the Sweetwater Mine/Mill is depicted in Figure 1-2 and a more detailed view of the facility around Sweetwater Mine/Mill is shown in Figure 1-3. These figures show several features relevant to this SWMP, including the following:

- Tailings impoundment – Tailings from the Sweetwater Mill are pumped to the tailings impoundment.
- Sweetwater office building – This building currently provides office space for Sweetwater Mine/Mill operations. It is adjacent to the hoist building.
- Sweetwater mill – This building houses Sweetwater milling operations.
- Crusher building – This structure houses the ore crusher, which processes ore prior to milling.
- Concentrate building – This building provides covered storage for lead concentrate, prior to shipment off-site.
- Truck wash – All trucks leaving the mill must drive through the truck wash.
- Water tower – The water tower provides storage for water pumped from the tailings impoundment for use in the mill.
- Meander system – The meander system is a polishing system that uses natural processes to improve water quality prior to discharge at Outfall 002.
- Stormwater sump – The stormwater sump collects stormwater runoff from the facility, crusher cooling water, and mine dewatering and process wastewater from milling and pumps the water to the tailings impoundment.
- Outfall 002 – Outfall 002 is the permitted outfall for the Sweetwater tailings impoundment.

- Outfall 015 – Outfall 015 is the permitted outfall for the stormwater retention basin.

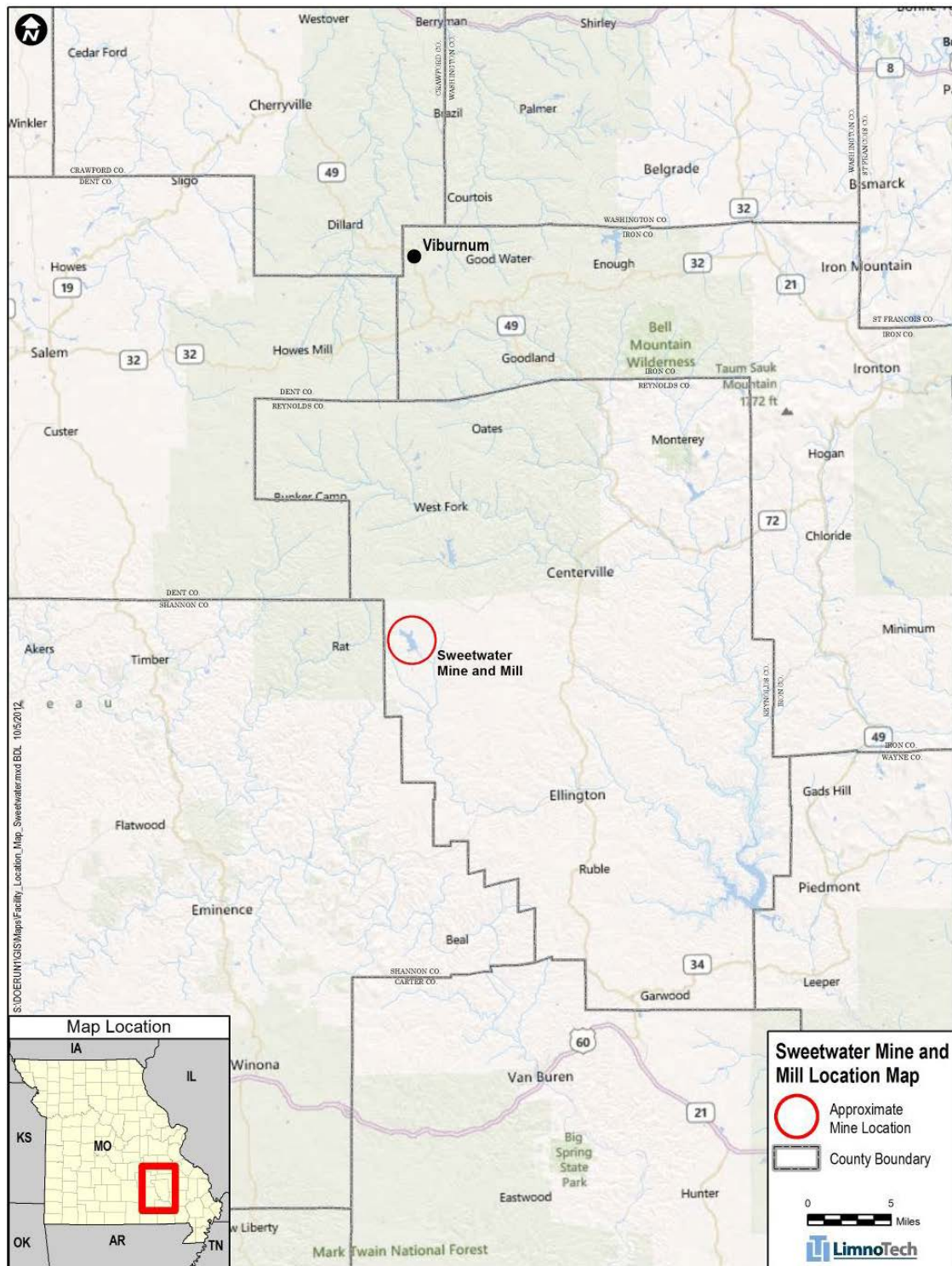


Figure 1-64. Location of the Sweetwater Mine/Mill.

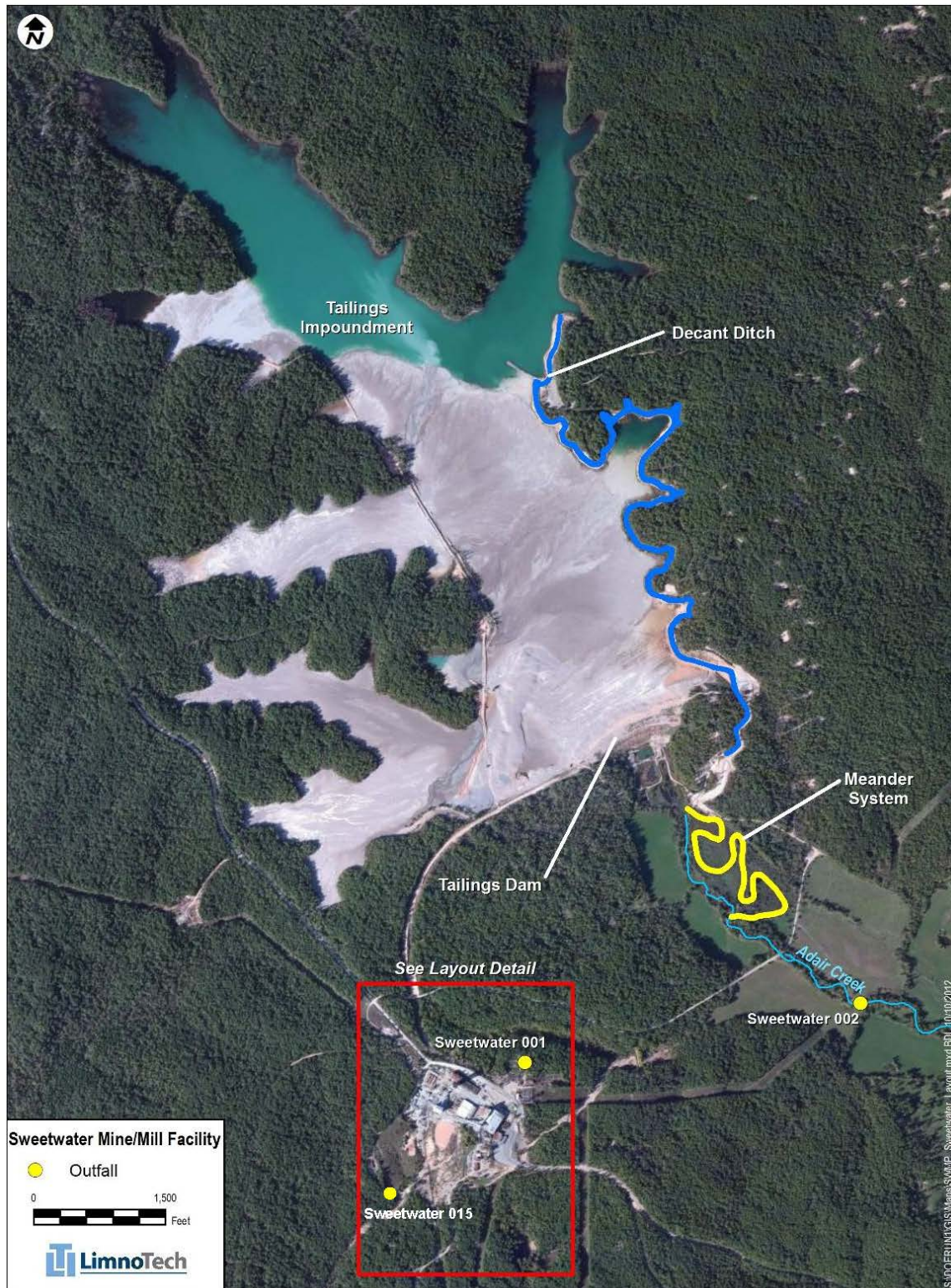


Figure 1-65. Sweetwater Mine/Mill Overall Layout



Figure 1-66. Sweetwater Mine/Mill Layout Detail.

Sweetwater Mine/Mill Surface Water Management Team

Surface water management for the Sweetwater Mine/Mill will be the responsibility of the individuals named in Table 1-1. All of the individuals named are employees of The Doe Run Company.

Table 1-7. Sweetwater Mine/Mill Surface Water Management Team.

Job Title	Name	Contact Info	Role/Responsibilities
Environmental Compliance Supervisor	Amy Sanders	P.O. Box 500 Viburnum, MO 65566 573- 689-4535	Environmental data collection, management, reporting, and compliance.
EHS Regulatory Manager	Mark Cummings	P.O. Box 500 Viburnum, MO 65566 573- 244-8152	Oversight of Environmental Permitting
Mill Manager	John Boyer	P.O. Box 500 Viburnum, MO 65566 573-689-4263	Oversight and management of Doe Run mill operations
Chief Engineer	Dan Buxton	P.O. Box 500 Viburnum, MO 65566 573-244-8142	Oversight of major water management measures evaluation and design
General Maintenance Manager	Gene Hites	P.O. Box 500 Viburnum, MO 65566 573-689-4151	Management of facility maintenance issues and personnel
Environmental Engineering Supervisor	Kevin James	P.O. Box 500 Viburnum, MO 65566 573-626-2096	Oversight of wastewater treatment.
Sweetwater Mill Superintendent	Gary Skaggs	P.O. Box 500 Viburnum, MO 65566 573-924-2222 ext. 2424	Sweetwater SWMP Primary Oversight, Implementation
Sweetwater Maintenance Supervisor	Vince Mertzlufft	P.O. Box 500 Viburnum, MO 65566 573-924-2222 ext. 2423	Sweetwater SWMP Secondary Oversight, Implementation, and maintenance record-keeping

Water Balance and Source Identification

This section summarizes the sources and quantities of water at the facility requiring management and treatment.

Mine Water

Mine water from the Sweetwater Mine is pumped to the surface via the A-Area sump and the main mine shaft and is routed to the tailings impoundment, which provides treatment via settling. Average mine water flow rates are estimated to be 3.6 MGD (~2,500 gpm).

Following treatment in the tailings impoundment, mine water is discharged to Adair Creek at outfall 002, along with other flows to the tailings impoundment.

Precipitation and Stormwater Runoff

The average annual rainfall for the area is 38 inches. Figure 2-1 shows the drainage areas contributing stormwater runoff in the mine/mill area and the tailings impoundment. The total volume of direct precipitation and stormwater runoff requiring management and treatment was estimated to be 2.34 MGD on an average annual basis. Runoff during large storm events is substantially larger. The total volume of water resulting from a 10-yr, 24-hr rainfall event is 215 MG. This includes watershed runoff and direct precipitation on the tailings impoundment.

Mine Water Transfer from Big Bear

In an effort to obtain cost-efficiencies by building fewer, larger treatment plants, mine water pumped to the surface at the Big Bear Shaft and will be transferred via aboveground piping to the Sweetwater Mine/Mill for treatment. A conceptual layout of the water transfer is presented in Figure 2-2. The current estimate of the transfer of mine water from Big Bear to Sweetwater is 8.64 MGD (~6,000 gpm).

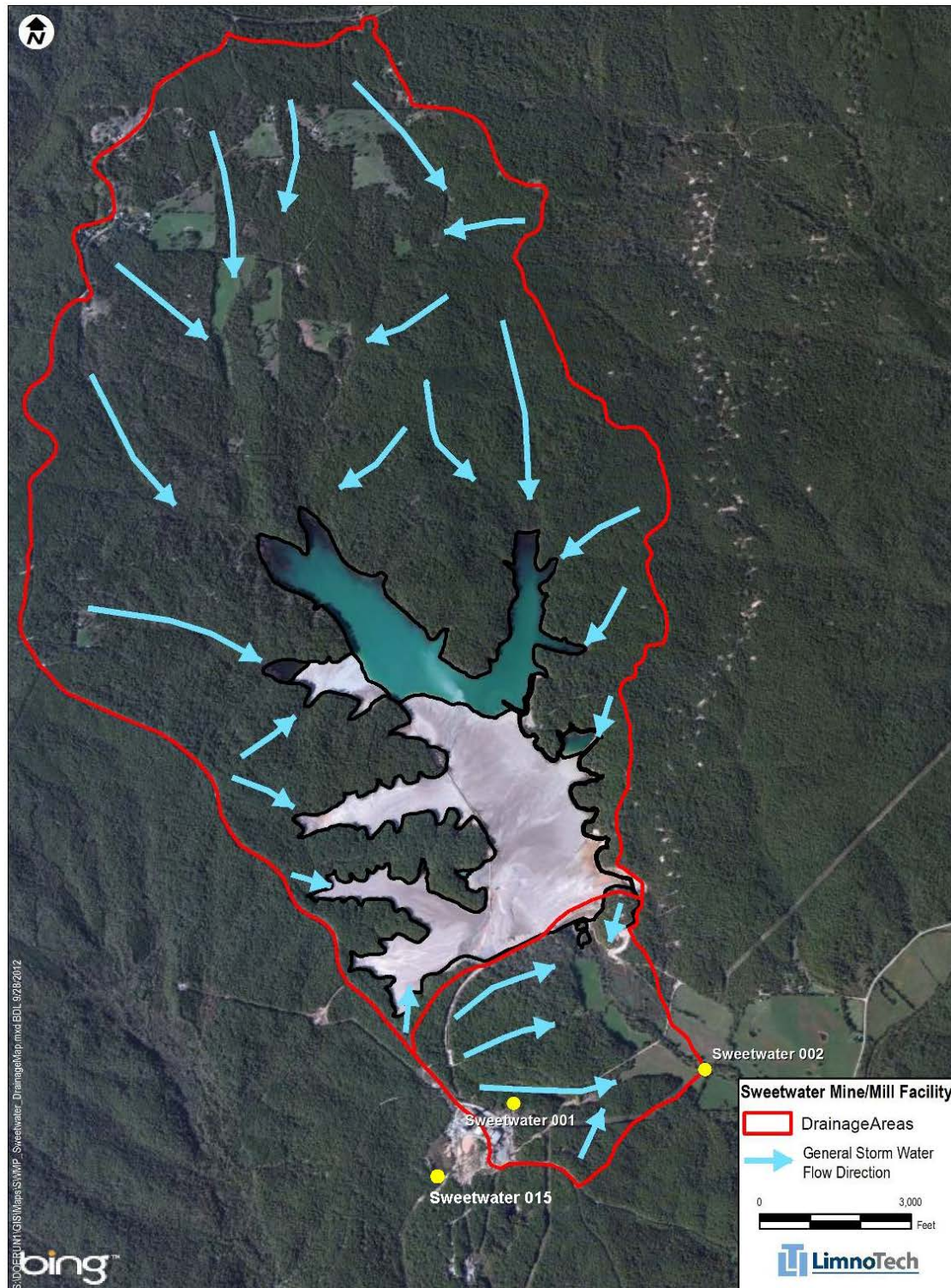


Figure 2-67. Stormwater Drainage Areas and Flow Paths at the Sweetwater Mine/Mill.

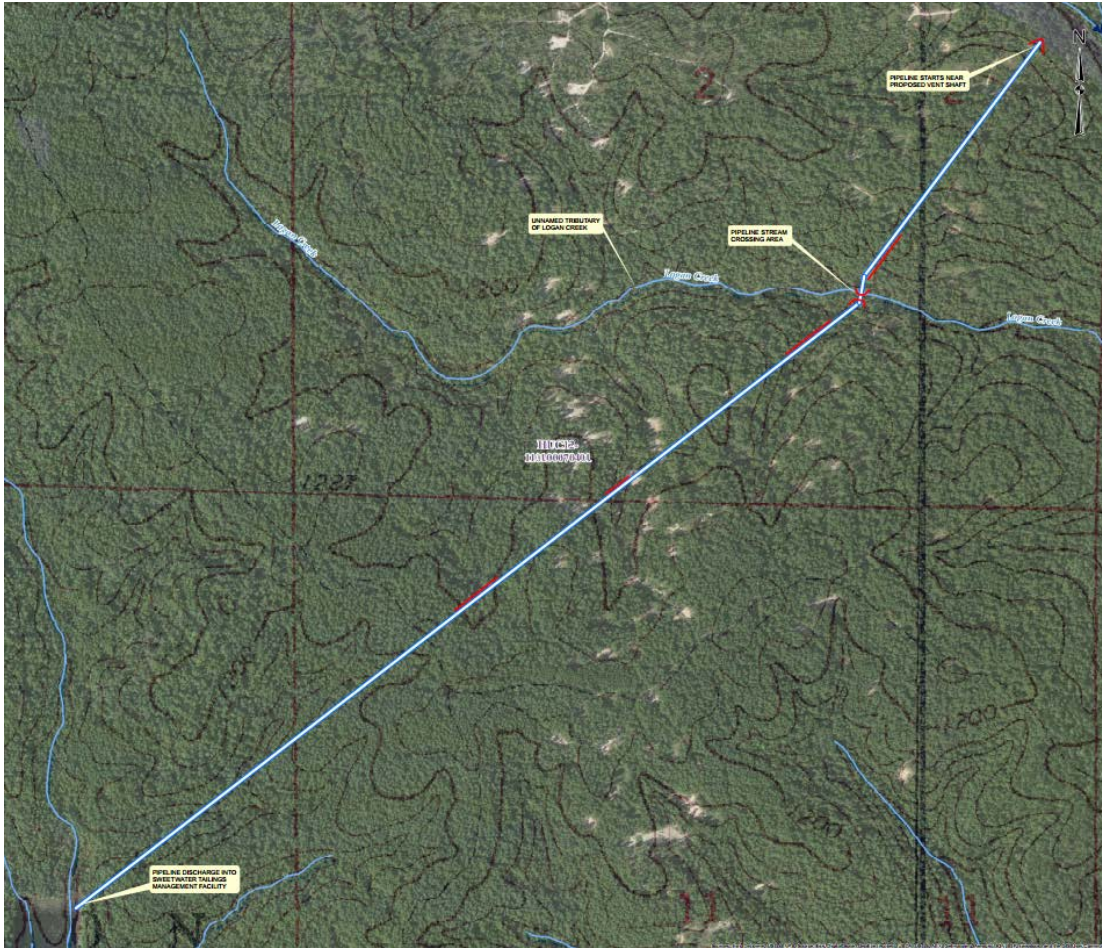


Figure 2-68. Conceptual Layout of Proposed Mine Water Transfer from Big Bear to Sweetwater Mine/Mill.

Facility Water Balance

A schematic of the water balance and proposed treatment system for the facility is presented in Figure 2-3.

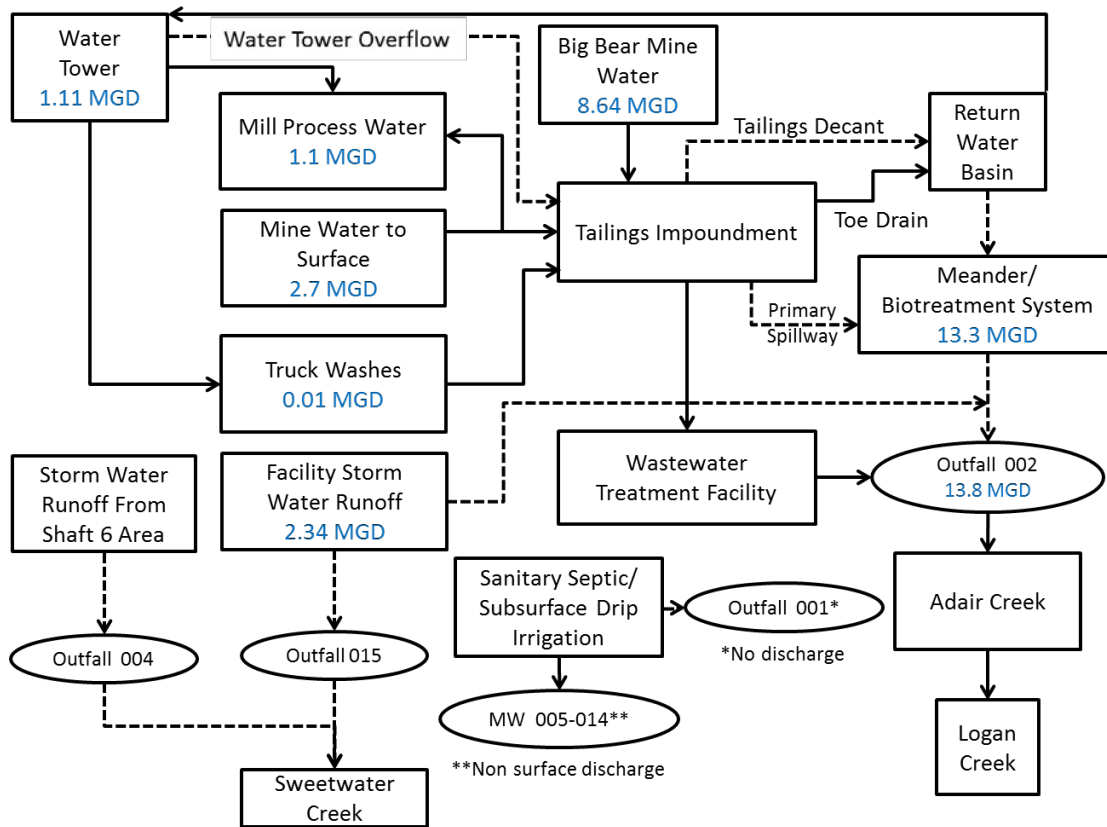


Figure 2-69. Water Balance and Conceptual Treatment Schematic.

Water Quality Monitoring

Water quality monitoring has been conducted at the Sweetwater Mine/Mill as required by the MSOP as well as additional monitoring to support the SWMP. Water quality data for select parameters collected from January 2012 through April 2014 are displayed in the figures below. These data are being used to evaluate surface water management practices and treatment needs at the facility. Supplemental monitoring may be performed to evaluate various water management measures and treatment requirements. The sampling locations presented in the figures include:

- Outfall 001: Permit-required monitoring;
- SW-APIPEEFF: Mine water pumped to the surface; and
- SW-DECDITCHINLET: Monitoring of water leaving tailings impoundment.

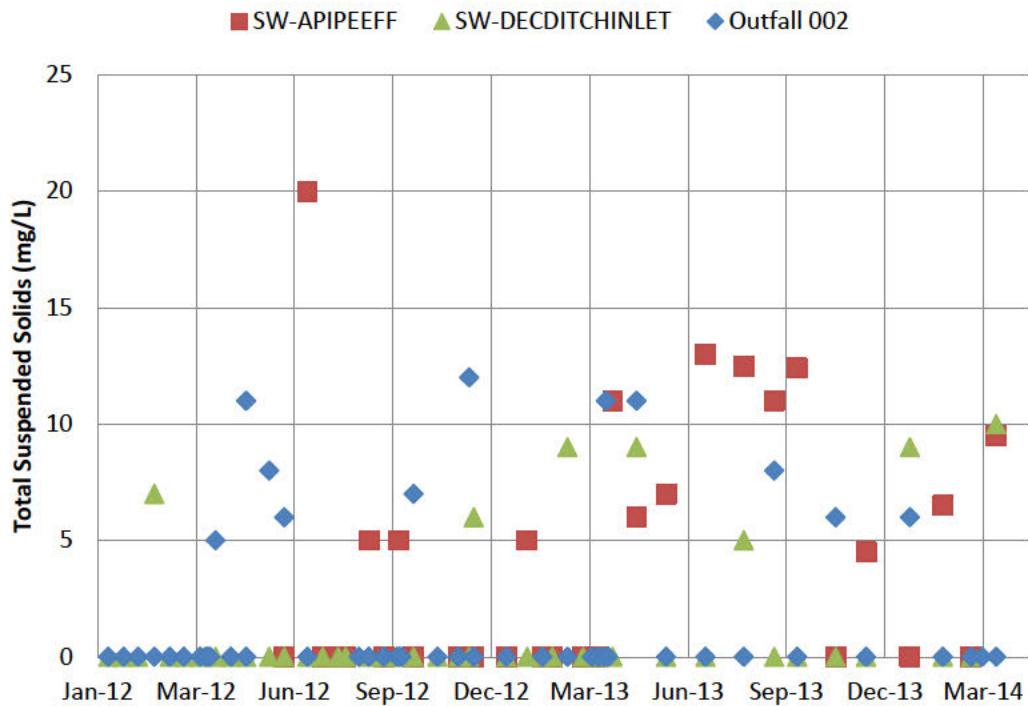


Figure 2-70. Monitoring of TSS at Surface Sampling Locations.

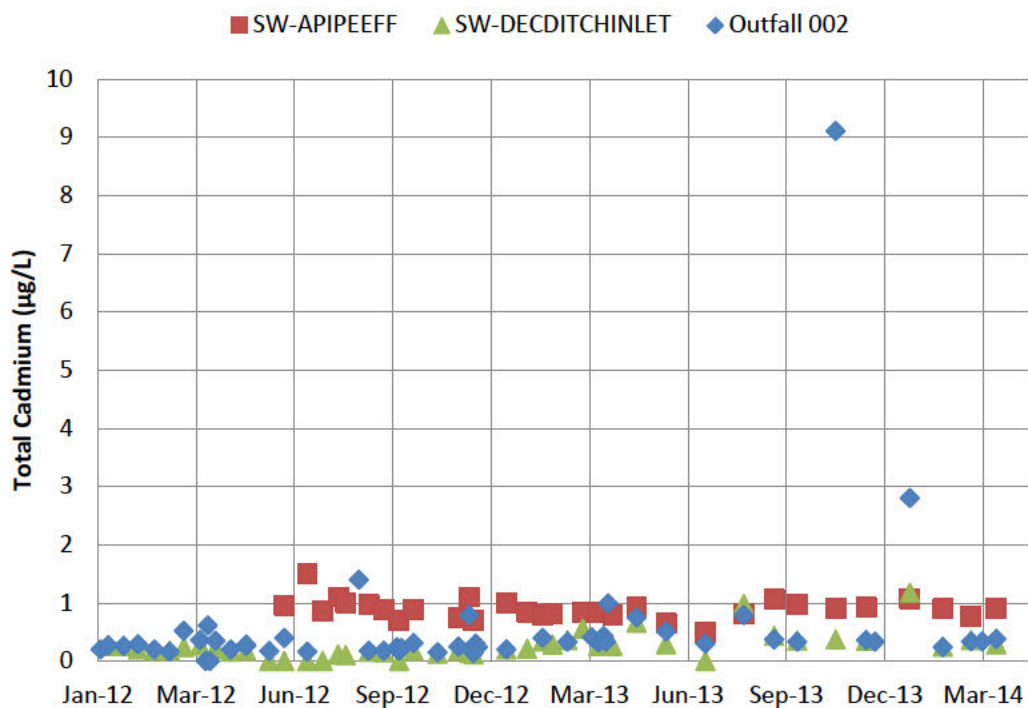


Figure 2-71. Monitoring of Cadmium at Surface Sampling Locations.

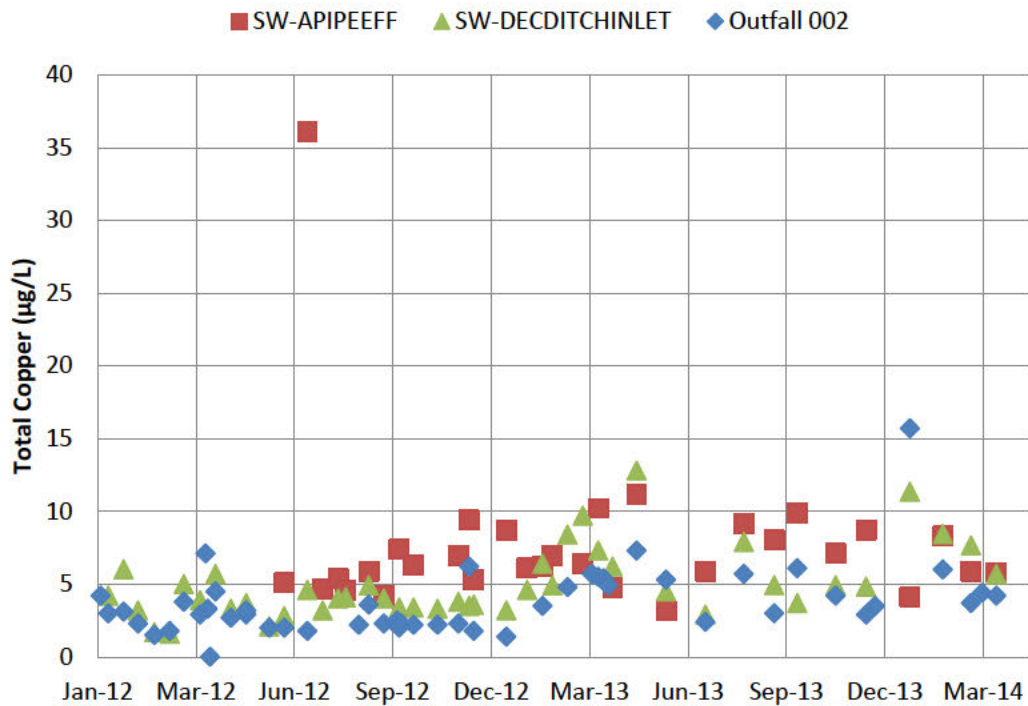


Figure 2-72. Monitoring of Copper at Surface Sampling Locations.

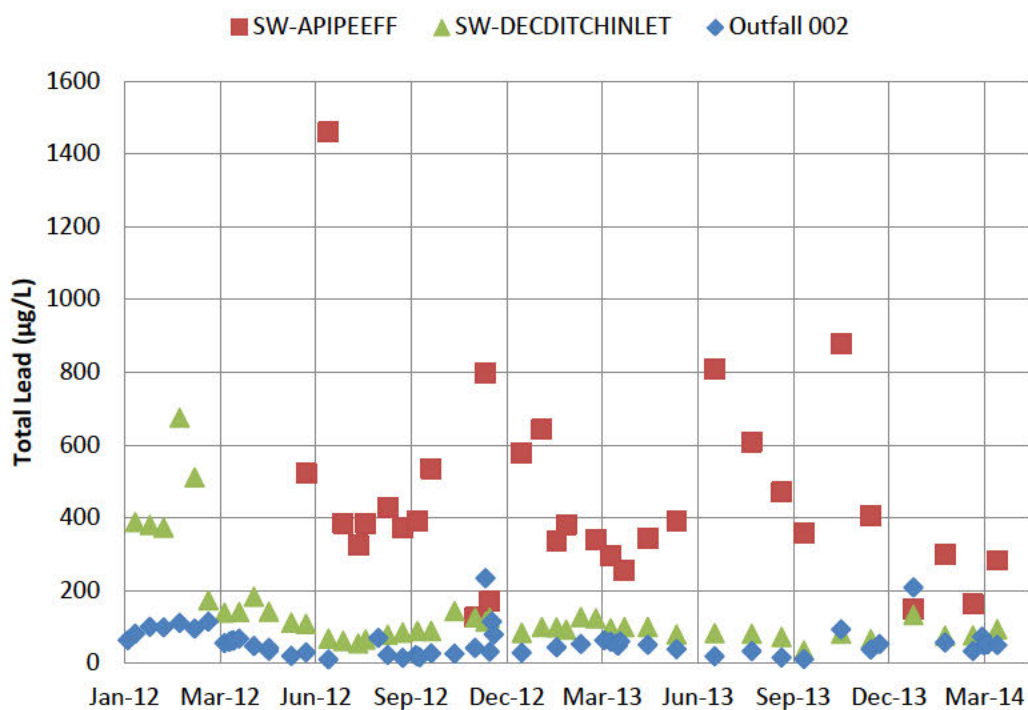


Figure 2-73. Monitoring of Lead at Surface Sampling Locations.

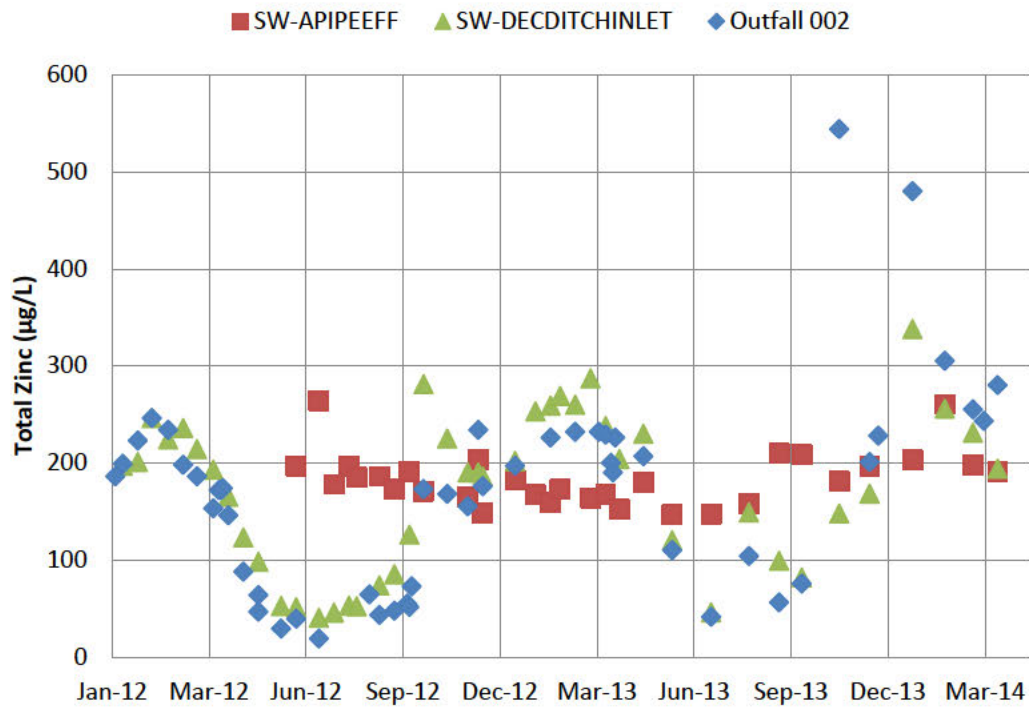


Figure 2-74. Monitoring of Zinc at Surface Sampling Locations.

Plan Implementation

Implementation activities to attain compliance with MSOP terms, conditions, and final effluent limitations are detailed in this section. A schedule for these activities is also included. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Completed Activities

Several activities have already been completed that support the effort to comply with MSOP terms, conditions and final effluent limitations. These include but are not limited to the following:

- Development and implementation of a Stormwater Pollution Prevention Plan (SWPPP);
- Flow and water quality monitoring underground and on the surface;
- Resolution of permit appeal issues addressing various concerns, including establishment of final effluent limits based on site-specific hardness and dissolved metal translator information;
- Development of the Underground Water Management Plan (UWMP) and the SWMP and an annual revision;
- SWPPP, UWMP and SWMP training;
- Implementation of BMPs underground to reduce flows or metals loadings;
- Completion of multiple treatability studies to evaluate chemical/physical treatment and biotreatment alternatives;
- Preparation and submittal of antidegradation reviews for water transfers between facilities;
- Contracting, design, permitting and construction of a treatment plant at Brushy Creek Mine/Mill, gaining valuable experience with full-scale construction and operation of the selected CoMag treatment process; and
- Construction of the storm water retention basin to collect storm water flows that drain from the mill and transfer such flows to the tailings impoundment.

Planned Activities

The following activities are planned in order to optimize the overall treatment system and meet final MSOP limits:

- 35. Pipeline Construction
 - Doe Run has applied for and received a land disturbance permit for the construction of the pipeline from Big Bear to Sweetwater.
- 36. Storm water storage, diversion, and overflow evaluation
 - Building treatment plants to handle peak runoff flows during extreme events is not feasible. An evaluation of peak runoff volumes and rates and the feasibility of storage

and diversion options is needed to appropriately size the treatment plant and limit overflows to acceptable precipitation event conditions.

- Storm water management alternatives will be assessed to understand mine water and runoff volumes, available storage, and optimum operation of storage areas.

37. Pilot testing

- Based on the design flows determined under the evaluation of storm water and mine water management, pilot testing will be completed to understand the most cost effective and reliable water treatment process.
- Pilot testing will require initial set-up, sampling, monitoring, review, process adjustments, and final verification.

38. Design

- Following the determination of design flow and treatment process, Doe Run's contractor will begin design, permitting, and construction of the water treatment system.
- Plant siting will require land surveying, geotechnical investigations, drainage evaluations, preliminary design of pumping systems, and an overall feasibility evaluation in order to find the optimal location for the plant.
- Design of the plant includes consideration of the building, utilities, equalization influent pumping, reaction tanks, clarifier, effluent tank, sludge management, chemical feed, HVAC, fire protection,

39. Site Work

- Erosion and sediment controls will be installed prior to land disturbing activities.
- Construction of access road to construction site.
- Site work to prepare construction site.
- Construct delivery of utilities to site.
- Construct piping from lift station to treatment system.
- Construct piping from treatment system to outfall.
- Storm water drainage.
- Final grading.

40. Stormwater Diversion

- Construct of stormwater diversion structure.

41. Construction

- Laydown area for onsite storage of materials during construction
- Temporary utilities
- Site security
- Construct foundation, building, tanks, install piping, equipment and controls.

- Electrical continuity tests
- Rotation check of equipment
- Clarifier torque test
- Unit process tests
- Instrument and valve calibration
- Check of control system I/O and communications
- Test of control system interlocks, alarms, and operations
- Test of control system communications
- Safety check

42. Permitting

- Although a construction permit is not required for the construction of the water treatment facility, a land disturbance permit may be required.
- An assessment will be performed to determine if a 404 permit is required for any construction activities that may occur in waters of the United States.

43. Plant startup and shakedown

- A source for treatment chemicals will be identified and contracted.
- Metering pumps will undergo calibration and control loops will be tuned and adjusted.
- Process chemistry will be adjusted and an iterative cycle of sampling, monitoring, analysis, and adjustment will be needed to optimize the process.

44. Whole Effluent Toxicity (WET) test confirmation period

- Confirmation and monitoring will take place to understand the long term adjustments and operation of the system. Compliance with chronic whole effluent toxicity tests can require fine-tuning chemical additions and adjustments to balance metals removal and toxicity.

Anticipated Bypasses from Storage Structures

Doe Run operates and maintains tailings impoundments and/or mine water basins at its mines. All of these structures have a spillway pipe and/or an emergency spillway. In each Surface Water Management Plan, Doe Run proposes to construct wastewater treatment facilities to treat and discharge water stored in tailings impoundments/mine water basins. However, during certain precipitation conditions, either large single storm events or a series of smaller yet substantial storms⁷, these impoundments or basins may bypass⁸ stormwater influxes to prevent catastrophic damage to these storage structures.

For example, the Old Viburnum tailings impoundment has a huge, 2,600 acre watershed. Thus, even modest stormwater events send large amounts of water into the Old Viburnum tailings impoundment. It is Doe Run's goal to capture, store and treat up to the one in five year 24-hour event in the Old Viburnum tailings impoundment. Compare this to West Fork tailings impoundment which, for example, has a much smaller watershed and a greater capability to capture and store runoff. At West Fork, it is Doe Run's goal to be able to store up to a 1 in 10 year 24-hour event without bypassing. In conclusion, depending on the watershed size, basin size, and ability to divert stormwater, these basins will bypass during different precipitation conditions.

In regards to the Sweetwater tailings impoundment, Doe Run plans to manage the tailings impoundment to be able to hold a 1 in 10 year 24-hour event. According to Doe Run's calculations, 3.1 feet of freeboard in the available storage areas of the tailing impoundment will store a 1 in 10 year 24-hour event. Whenever the Sweetwater tailings impoundment freeboard is less than 3.1 feet, the Sweetwater wastewater treatment facility will be operated at maximum capacity until such time as the freeboard is returned to 3.1 feet. At this time, it is estimated that the Sweetwater wastewater treatment facility will be designed to treat between 12,000 and 15,000 gpm.

At Sweetwater, discharges from tailings impoundment through Outfall 002 would be authorized during or following precipitation conditions so long as Doe Run complies with the following requirements:

5. The wastewater treatment plant was maintained and operated at maximum capacity at times the freeboard was less than 3.1 feet leading up to the discharge through Outfall 002.
6. The following information would be recorded and reported to DNR in the DMR for months when Outfall 002 discharged:
 - a. Daily treatment and discharge volumes through Outfall 002;
 - b. Daily water surface elevation in the tailings impoundment;
 - c. Daily precipitation;
 - d. Each discharge at Outfall 002 will be sampled and analyzed for pH and settleable solids.

⁷ A *chronic weather event* is a single stormwater event or a series of wet weather conditions that occur over a ten day period as determined by the University of Missouri's Missouri Climate Center. The Climate Center can make a determination when a chronic weather event is occurring for any given county in Missouri based upon an evaluation of the 1 in 10 year return rainfall frequency over a 10-day, 180-day and 365-day operating period.

⁸ The Department may approve an anticipated bypass, after considering its adverse effects, if the Department receives at least 10 days' notice before the bypass and the Department agrees the bypass was unavoidable to prevent severe property damage, and there are no feasible alternatives to the bypass. 10 CSR 20-7.015 (9)(G)2-4.

Schedule

A schedule of the planned implementation activities has been developed based on the experience and timing of similar activities that have taken place at the Brushy Creek facility. The schedule is presented in Figure 3-1. Any modifications to the implementation schedule shall be made consistent with paragraph 48 of the consent decree.

Figure 3-75. Implementation Schedule.

	2015												2016											
Month	Oct	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Installation of Pipeline from Big Bear to Sweetwater																								
Storm water storage/ diversion evaluation																								
Pilot testing																								
Design																								
Site work																								
Construction																								
Permitting																								
Plant startup and shakedown																								
WET test confirmation period																								
Compliance with MSOP final limits																								